PORTS ON THE DELAWARE RIVER BELOW AND ABOVE PHILADELPHIA, PA.

PORT SERIES No. 30

(REVISED 1938)

CORPS OF ENGINEERS
UNITED STATES ARMY

AND

UNITED STATES MARITIME COMMISSION

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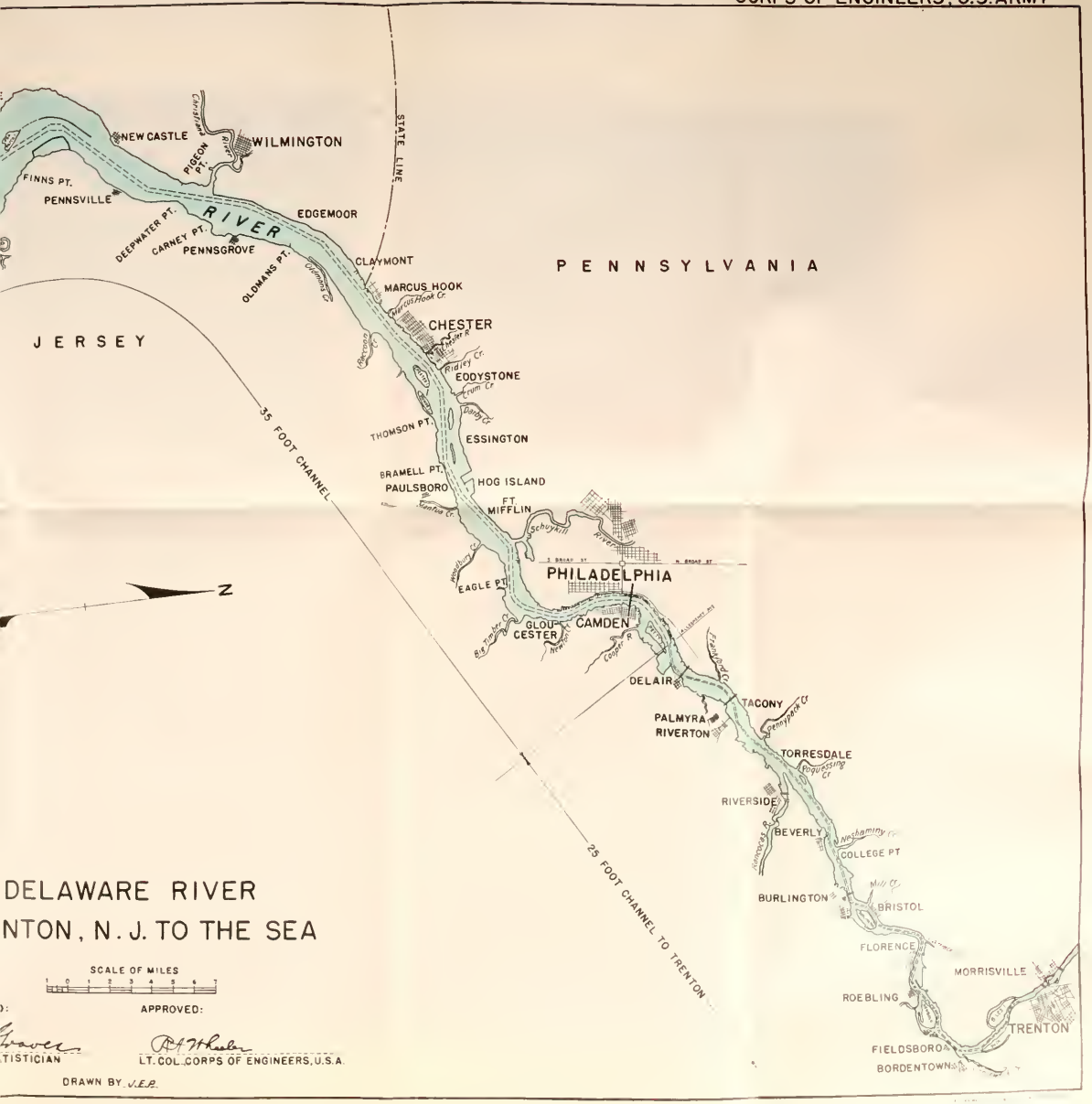
WAR DEPARTMENT



DELAWARE RIVER
NTON, N. J. TO THE SEA

SCALE OF MILES

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LT. COL. CORPS OF ENGINEERS, U.S.A.

DRAWN BY V.E.P.

WAR DEPARTMENT
CORPS OF ENGINEERS, UNITED STATES ARMY
AND
UNITED STATES MARITIME COMMISSION

PORT SERIES No. 30
(REVISED 1938)

PORTS ON THE DELAWARE RIVER BELOW AND ABOVE PHILADELPHIA, PA.

Prepared by
THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS
WAR DEPARTMENT
AND
DIVISION OF RESEARCH
UNITED STATES MARITIME COMMISSION

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1938

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The following is a list of reports prepared under authority of section 500 of the Transportation Act and section 8 of the Merchant Marine Act.

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LETTER OF TRANSMITTAL

War Department,
The Board of Engineers for Rivers and Harbors,
Washington, D. C., June 30, 1938.

Subject: Ports on the Delaware River below and above Philadelphia.
To: The Chief of Engineers, United States Army.

1. There is transmitted herewith a report on the Ports on the Delaware River below and above Philadelphia which is a revision of the data on these ports formerly included in Parts 1 and 2 of Port Series No. 4 and is now prepared for publication as Port Series No. 30. The report was prepared by this department and the United States Maritime Commission as a result of the cooperation prescribed by section 8 of the Merchant Marine Act and in furtherance of the objects intrusted to the War Department by section 500 of the Transportation Act of 1920.

2. In accordance with the agreement for cooperation between the two organizations, the report is now prepared in two parts, Part 1 having been compiled in this office and Part 2 by the Maritime Commission. The information compiled by this office covers port and harbor conditions, fuel and supplies, port and harbor facilities, railroad services, and detailed statistics of the water-borne commerce. Some of this information was supplied by the district engineer at Philadelphia, Pa., and the remainder was secured by representatives of the statistical division of this office who made a personal inspection of the facilities at the ports. The final report was completed and assembled by the statistical division under the supervision of Mr. Warren E. Graves, chief statistician of the board, who is in immediate charge of the work.

3. On account of the value of the information to commerce and shipping and to the operation of the American merchant marine, it is recommended that the report be printed, with the accompanying illustrations.

For the Board:

R. A. Wheeler,
Lieut. Col., Corps of Engineers,
Resident Member of the Board.

[First endorsement]

Office of the Chief of Engineers,
June 30, 1938.

To the Board of Engineers for Rivers and Harbors,
Washington, D. C.

Approved.

J. L. Schley,
Major General, Chief of Engineers.

UNITED STATES MARITIME COMMISSION,
Washington, October 14, 1938.

To: Alfred H. Haag, Director, Division of Research.
From: E. P. Cotter, Chief, Trades Routes and Ports Project.
Subject: Port Series No. 30, Ports on the Delaware River Below and Above Philadelphia.

Section 8 of the Merchant Marine Act of 1920 requires the United States Maritime Commission, in cooperation with the Secretary of War, to investigate port facilities and the flow of commerce through ports in order to encourage their use by vessels engaged in the domestic and foreign trades of the United States.

Under the cooperative arrangement with the Board of Engineers for Rivers and Harbors, United States Army, the report on the ports on the Delaware River below and above Philadelphia, which is Port Series No. 30, has been completed. In accordance with the arrangement between the War Department and the United States Maritime Commission, Part II of this volume containing material on port customs and regulations, port labor and procedure employed in handling cargo, port and terminal services and charges, steamship services, rates and rate conferences, and territory tributary, was prepared in the Trade Routes and Ports Project of this Division by George M. Rice.

Recommendation is made that this material, the manuscript of which is transmitted herewith, be approved for publication.

E. P. COTTER,
Chief, Trade Routes and Ports Project, Division of Research.
ALFRED H. HAAG,
Director, Division of Research.

INTRODUCTION

This is a revision of the data on the ports on the Delaware River below and above Philadelphia, Pa., formerly issued in Port Series No. 4, Parts 1 and 2, and now issued as Port Series No. 30. It is one of a series of reports on the principal ports of the United States, prepared to meet the needs of the War Department and the United States Maritime Commission in the development of harbors and the encouragement and betterment of port facilities, with a view to the promotion of water transportation and the American merchant marine, and to assist commercial and shipping interests in the upbuilding of American trade.

The War Department is charged by law with the planning and improvement of our harbors and navigable channels, and jointly with the Maritime Commission is required to undertake investigations of ports and terminals and of the territory tributary to ports, and to advise with communities regarding the appropriate location and plan of construction of wharves, piers, and water terminals; to investigate the practicability and advantages of harbor, river, and port improvements; and to investigate any other matter that may tend to promote and encourage the use by vessels of ports adequate to care for the freight which would naturally pass through such ports.

The United States Maritime Commission in its encouragement of an American-owned merchant marine can afford to overlook no detail which will contribute to the economy of ship operation, and the curtailment of time spent by vessels in port is an important item in ship economics. Before they can properly function in the encouragement of ports and ships, both the War Department and the Maritime Commission must have facts, without which the shipping business can not be successfully conducted nor the port terminal correctly planned and economically operated.

Before establishing shipping agencies the manufacturer must consider every factor influencing the prompt and economical movement of his products. Traffic does not always follow the shortest route nor that having the lowest line-haul rate, but it will usually be found that there are sound reasons for this seeming disregard of economy. Frequently the principal of these reasons is to be found at the port. In order to attract business, a port must first provide the facilities essential for handling the particular commodities which it is likely to be offered, and this requires a detailed study of production and con-

sumption within the territory naturally tributary to the port and the provision of equipment especially designed to meet the several requirements of this traffic. The ships calling, or likely to call, at the port must be studied in the endeavor to provide the facilities and render the service which will permit their more rapid turn around. The railroad situation is frequently a controlling element in port success. There should be ample trackage serving the terminal or terminals, with the most economical interchange both between the several railroads entering the port and between these railroads and the ship. Not only should the physical characteristics of the terminal with regard to the coordination between railroad and ship be examined, but the railroad rates should be scrutinized, as in various instances a commensurate utilization of a port has been rendered impracticable by unfavorable rate conditions.

The absence of any one essential may prevent what should be an economical route or port from securing its tributary business. The trouble may be lack of adequate terminals, the absence or inaccessibility of storage facilities, the imposition of excessive switching or terminal charges, the absence of repair or docking facilities, the lack of well-balanced cargoes and frequent sailings, or other conditions affecting the movement of goods through the port and ability of vessels to earn a fair revenue. Port coordination and management are apt to play a considerable part in the success or failure of the port community to attract and hold business. Where possible the control of all deep-water frontage by the public, as represented by the State or municipality, including the ownership and operation of a belt-line railroad connecting all rail lines and all terminals, is a practical solution of the coordination problem and is an effective remedy for many of the ills that now exist.

Ports should not have to depend upon the good will or selfish interests of either railroads or steamship lines to develop business. The railroads may prefer to have the business go elsewhere, and the water carriers could scarcely be expected to undertake extensive operations designed to bring goods to a particular port. In other words, the development of traffic should be regarded as one of the permanent functions of the port itself. Among the important objects, therefore, which it is hoped to attain from this series of reports is a more general appreciation of the benefits to be derived from the adoption of a comprehensive plan and policy for the development and utilization of the port.

Acknowledgment is made of the cooperation and assistance rendered by various port organizations, shipping interests, facility owners, city officials, and other local interests in the work of compiling data for inclusion in this report.

PART I

PREPARED BY

THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS

WAR DEPARTMENT

PORTS ON THE DELAWARE RIVER BELOW AND ABOVE PHILADELPHIA, PA.

PORTS BELOW PHILADELPHIA

PORT AND HARBOR CONDITIONS

GENERAL DESCRIPTION

The Delaware River flows in a generally southerly direction, forming the boundary line between the States of New York and New Jersey on the east and Pennsylvania and Delaware on the west, and empties into Delaware Bay. The mouth of the bay on the Atlantic Ocean lies between Cape May, N. J., and Cape Henlopen, Del. The lower section of the river is the approach to the ports of Philadelphia, Pa., Camden, N. J., and Wilmington, Del., and is also the main artery for water-borne commerce serving localities on the river below Philadelphia.

The Delaware River below Philadelphia, as contemplated in this report, embraces the 26-mile section of the river extending from New Castle, Del., to Philadelphia, Pa., on the banks of which the following localities are situated: New Castle, Del., Pennsville, Deepwater Point, and Pennsgrove, N. J., Edgemoor and Claymont, Del., Marcus Hook and Chester, Pa., Bridgeport, N. J., Eddystone and Essington, Pa., Thompson Point and Paulsboro, N. J. The latter is also served by Mantua Creek, which forms the upper boundary of the city. Mantua Creek rises in Gloucester County, N. J., flows northwesterly 16½ miles and empties into Delaware River at Paulsboro, about 10 miles below Chestnut Street, Philadelphia.

CHANNELS

The main ship channel in Delaware River extends from deep water in Delaware Bay about 8 miles below Liston Point to Philadelphia. It is 35 feet deep at mean low water, 800 feet wide in the straight parts, with least widths of 1,000 feet at bends. Portions of the channel are subject to constant shoaling and require maintenance dredging by the United States. Controlling depths on the various lighthouse ranges and related information are set forth in periodical statements issued by the district engineer, United States Engineer Office, Philadelphia,

Pa., copies of which are furnished all shipping and other maritime interests.

The controlling depths in the dredged channel in Mantua Creek on June 30, 1937, were 12.8 feet at mean low water from Delaware River to the fertilizer wharf, about 1,800 feet above the mouth, thence 10.3 feet to the Pennsylvania Railroad bridge, thence 10.4 feet to Strathmann sand and gravel wharf.

Harbor of Refuge, Delaware Bay.—Delaware Bay Harbor of Refuge is on the south side of the lower end of Delaware Bay, a few miles from the Atlantic Ocean. The harbor proper is protected by the Delaware Breakwater which has a top length of 7,950 feet with 15 detached ice piers at the northerly end.

Chesapeake and Delaware Canal.—This canal extends from Reedy Point, Del., on Delaware River to Elk River, which is an arm of the Chesapeake Bay. It is a toll-free, sea-level canal, about 19 miles in length, affording an inland water route between ports on the Delaware River and Baltimore, Md., and other Chesapeake Bay ports, and is a link in the Atlantic intracoastal waterway extending from Boston, Mass., to Miami, Fla. The project provides for a depth of 27 feet at mean low water and a bottom width of 250 feet. The controlling depth in May 1938 was 21 feet at mean low water. The canal is crossed by 5 bridges, all of the vertical lift type having maximum vertical clearances of 140 feet above mean low water. The eastern end of the canal at Reedy Point is 7 miles below New Castle, Del., and the western terminus on Elk River is approximately 50 miles from Baltimore, Md.

TIDES AND TIDAL CURRENTS

The Delaware River is tidal to Trenton, N. J., the mean tidal ranges at localities on the bay and river being 4.0 feet at Cape Henlopen, 4.9 feet at Brandywine Shoal Light, 5.8 feet at Cross Ledge Light, 5.9 feet at Ship John Light, 6.0 feet at Artificial Island, 5.5 feet at Reedy Point, 5.6 feet at New Castle, 5.5 feet at Deepwater Point, 5.4 feet at Marcus Hook, and 5.3 feet at Paulsboro.

The mean range of tide in the Delaware and Chesapeake Canal is 5.5 feet at Reedy Point jetties, and 2.3 feet at Chesapeake City.

ANCHORAGES

There are four anchorage areas in the Delaware River between New Castle, Del., and Philadelphia, Pa., having a combined area of 936 acres. These anchorages are as follows:

Deepwater Point anchorage is situated off Deepwater Point, N. J., and opposite Wilmington, Del. It lies to the eastward of the channel marked by Cherry Island range lights to the northward of a line

running 280° from Deepwater Point range front light, to the southward of a line running 112° from the Christiana River south jetty. Depths are 20 to 50 feet at mean low water.

Marcus Hook anchorage is situated to the southwestward of the channel marked by the Marcus Hook range lights to the eastward of a line running from the General Chemical Co.'s stack at Claymont, Del., to the westward of a line running 329° from the lower end of Raccoon Island, N. J. The limits of that portion of this area which is dredged to a depth of 35 feet at mean low water are marked by the following buoys:

Marcus Hook Range Buoy 6M, 4,200 yards 252° from Raccoon Island jetty light, marking the southwesterly junction of the anchorage with the main channel.

Buoy A, a white third-class tall nun with white reflector, 3,750 yards 247½° from Raccoon Island jetty light, marking the southeasterly corner of anchorage ground.

Buoy D, a white third-class tall nun with white reflector, 2,275 yards 253° from Raccoon Island jetty light, marking the northeasterly corner of anchorage ground.

Vessels drawing 25 feet or under, and not subject to quarantine inspection, must anchor above the Sinclair Oil Co.'s wharf at Marcus Hook and to the southward of the main ship channel.

Preferential area.—The area between lines projected from the northeast and southwest boundaries of the United States quarantine station at Marcus Hook, Pa., and to the southeastward of the main ship channel has been designated for preferential use of vessels awaiting quarantine inspection. This area is marked with the following buoys:

Quarantine Buoy B, a yellow second-class special nun, with white reflector, 3,410 yards 248½° from Raccoon Island jetty light.

Quarantine Buoy C, a yellow second-class special nun, with white reflector, 3,150 yards 250° from Raccoon Island jetty light.

Should the remainder of the 35-foot Marcus Hook anchorage be in use, the said preferential area, when unoccupied, may be used by deep draft vessels not subject to quarantine inspection.

Thompson Point anchorage is situated off Thompson Point, N. J., and directly opposite Essington, Pa. It is used for vessels loading explosives only. The area lies west of a line running 0° from Crab Creek east of a line running 0° from the carfloat slip at Thompson Point, and south of the channel marked by the Tinicum Island range lights. Depths are 10 to 35 feet at mean low water.

Mantua Creek anchorage is situated southeast of the channel marked by the Mifflin Bar range lights, from a line running 0° from Tinicum Island range rear light along the east channel line, approximately 8,200 feet to red gas buoy 2F. This area is dredged to a

depth of 35 feet mean low water, the limits of which are marked by the following buoys:

Buoy A, white nun, 825 yards 55½° from Mantua Creek anchorage light, marking the southwesterly corner of anchorage ground.

Buoy B, white spar, 1,240 yards 72° from Mantua Creek anchorage light, marking the southerly corner of anchorage ground.

Buoy C, white spar, 2,320 yards 229½° from Block Island light, marking easterly limit of anchorage ground.

Buoy D, white spar, 1,325 yards 327° from Block Island light, marking southeasterly corner of anchorage ground.

Small, light draft vessels must anchor in the angle marked by red gas buoy 2F and white spar buoy D, or above the upper jetty at Mantua Creek east of the anchorage limits.

WEATHER CONDITIONS

The conditions of weather on the Delaware River between New Castle, Del., and Philadelphia, Pa., may be taken to be approximately as those prevailing at Wilmington, Del., to which port the following data are applicable:

Open season for navigation.—The channel is usually navigable throughout the entire year.

Winds.—The prevailing winds are northeast and northwest from October to April and southwest from May to September.

Ice.—Ice rarely interferes with navigation along the Atlantic coast, but in severe winters may form an obstacle to navigation in the bay and river. In ordinary winters there is usually sufficient ice in the bay and river to make it necessary for sailing vessels to use care. This ice has been known to form early in December between Wilmington and Philadelphia, but the heavier ice does not usually begin to run before January. After the first of March ice is rarely encountered.

Fogs.—Fogs generally occur in the morning from 4 to 9 or 10 o'clock; very seldom are there any fogs after 12 noon. The heaviest fogs are in December and January.

Precipitation.—There is no rainy season. The mean annual precipitation covering a period of 10 years is 44.58 inches.

Temperature.—The mean maximum annual temperature covering a period of 10 years is 63.44° while the mean minimum temperature for the same period is 44.58°.

The following information has been furnished by the Chamber of Commerce and the Street and Sewer Department, Wilmington, Del.

Meteorological data

Year	Maximum mean temperature	Minimum mean temperature	Mean temperature	Amount of rainfall	Number of days rainfall	Number of days clear	Number of days part cloudy	Number of cloudy days	Amount of fog	
									Hours	Minutes
	° *F.*	° *F.*	° *F.*	*Inches*						
1927	62.2	44.4	53.2	45.59	110	188	52	125	520	00
1928	62.6	44.2	53.5	48.37	111	202	50	114	284	45
1929	63.7	44.1	53.9	44.53	106	200	51	114	435	30
1930	64.7	44.7	54.7	28.27	88	207	64	95	321	40
1931	64.7	46.5	55.6	40.37	95	192	49	124	289	45
1932	64.7	45.5	55.1	48.22	103	202	57	107	312	45
1933	63.9	45.2	54.5	50.10	111	202	47	116	428	00
1934	62.5	43.4	52.9	43.16	109	187	52	126	536	15
1935	62.2	43.8	53.0	51.02	125	176	69	120	487	15
1936	63.2	44.0	53.6	44.49	101	180	64	122	402	45
Average per year	63.44	44.58	54.00	44.41	105.9	193.6	55.5	116.2	401	52

BRIDGES

There are no bridges crossing the Delaware River between New Castle, Del., and Philadelphia, Pa. Mantua Creek at Paulsboro is crossed by two bridges, the details of which are shown on page 7.

HARBOR IMPROVEMENTS BY THE UNITED STATES

The Delaware River, between Philadelphia and the sea, has been under improvement since 1836. Early operations were largely confined to the removal of shoals and bars obstructing navigation. A comprehensive program for the permanent and systematic improvement of the river at Philadelphia and below was commenced in 1885 and has since been prosecuted continuously under successive projects. The existing project, authorized by the river and harbor act of June 25, 1910, provides for a channel from deep water in Delaware Bay, about 8 miles below Liston Point, to Allegheny Avenue, Philadelphia, a distance of about 63 miles, having a depth of 35 feet at mean low water and a width of 800 feet in the straight parts, 1,200 feet at Bulkhead Bar, 1,000 feet at the other bends, and 1,000 feet in Philadelphia Harbor; and includes the construction of dikes for the regulation and control of the tidal flow. An approved modification of the project provides for the deepening of the 35-foot channel to 40 feet at mean low water from deep water in Delaware Bay to the navy yard, thence 37 feet deep to the Philadelphia-Camden Bridge.

The project was modified by the river and harbor act of July 3, 1930, to provide for the dredging of an anchorage 35 feet deep and

6,400 feet long at Port Richmond; for straightening the channel and extending the 1,000-foot width from Philadelphia Harbor to Horseshoe Bend; for an anchorage area 30 feet deep and about 3,500 feet long at Gloucester, N. J.; for an anchorage 35 feet deep, 7,300 feet long, and 1,000 feet wide in the vicinity of Mantua Creek; and for the maintenance of any areas dredged by local interests to a depth of 35 feet between the channel and a line 100 feet channelward of the pierhead line between Point House Wharf and the Philadelphia Navy Yard, when in the opinion of the Chief of Engineers, United States Army, such areas are so located as to be of benefit to general navigation. The project was further revised by the Public Works Administration September 6, 1933, and the River and Harbor act of August 30, 1935, to provide for an anchorage 35 feet deep, 4,500 feet long, and 1,200 feet wide in the vicinity of Marcus Hook, Pa. The 63 miles of channel improvement was completed in 1934. The latest modification of the project, approved June 20, 1938, provides for a channel 37 feet deep from the Philadelphia-Camden Bridge to the navy yard, thence 40 feet deep to deep water in Delaware Bay, 800 feet wide in the straight reaches from the bridge to a point in Delaware Bay near Ship John Light, thence 1,000 feet wide, with 1,200 feet width at Bulkhead Bar, 1,000 feet width at other bends and in Philadelphia Harbor, and for the construction and maintenance of such additional dikes and training works as may be required, provided that the cities of Philadelphia and Camden shall agree to dredge not less than 110,000 cubic yards annually in maintaining the channel and anchorages in Philadelphia Harbor between Allegheny Avenue and the mouth of the Schuylkill River.

The project for the improvement of Mantua Creek, N. J., is described on page 70.

The project for the harbor of refuge at the lower end of Delaware Bay was adopted by the River and Harbor Act of June 3, 1896, and modified by later acts, which provided for the construction of a breakwater about 8,000 feet long, beginning at a point about 6,000 feet from Cape Henlopen and extending in a northerly direction for a distance of 2,695 feet; thence in a northwesterly direction for 5,330 feet; for the construction of five ice piers located in prolongation of this line and 10 more in a line perpendicular thereto extending toward the Delaware shore, and for a channel 15 feet deep and 300 feet wide from deep water in Delaware Bay to the pier of the Atlantic Fisheries Co. at Lewes, Del., with a turning basin 600 feet square at the inner end. The project was about 87 percent completed on June 30, 1937. The limiting depths for vessels in this protected area west of the breakwater ranges from 20 to 40 feet at mean low water. The work remaining to be done to complete the project is the provision of a 15-foot channel to the Atlantic Fisheries Co. pier and the turning basin. The

controlling depth in the proposed channel to the Atlantic Fisheries Co. pier is 12 feet at mean low water.

The original Chesapeake and Delaware Canal, equipped with three locks, was constructed during the years 1824–29 with funds contributed by the States of Maryland, Delaware, and Pennsylvania, the Federal Government, and by popular subscription, at a cost of $2,250,000. After 90 years of operation by private interests it was purchased by the Federal Government in 1919 for $2,514,000 under a project which provided for its conversion to a sea-level canal 12 feet deep at mean low water, and 90 feet at bottom width. The existing project, adopted by the River and Harbor Act of August 30, 1935, provides for a sea-level channel to accommodate vessels drawing 25 feet and having a depth of 27 feet and a width of 250 feet from Delaware River to Elk River, and thence 400 feet wide down Elk River and Chesapeake Bay to deep water at or near Pooles Island; alteration of existing bridges over the canal; extension of entrance jetties at Reedy Point; the enlargement of the anchorage and mooring basin in Back Creek to afford an area of about 400 feet wide, 1,000 feet long, and 12 feet deep, including provision of sluice gates at the fixed highway bridge; dredging the Delaware City branch channel to a depth of 8 feet and a width of 50 feet, deepening the existing basin to the same depth; revetment of both banks east of Fifth Street Bridge; and construction of bulkheads.

TERMINAL IMPROVEMENTS

New wharf construction has recently been completed at Edgemoor, Del., Marcus Hook, and Chester, Pa. At the former locality E. I. du Pont de Nemours & Co. have constructed a wharf for the receipt of acid and oil. It is a steel-sheet pile structure with solid fill, situated about 340 feet from the shore and connected therewith by a steel truss bridge. The wharf has a channel frontage of 40 feet, and, with dolphins, affords a berthage of 300 linear feet. A depth of 16 feet at mean low water is available at the berth. The wharf is shown under reference No. 11 in the descriptive table on page 17.

A new wharf has been constructed at Marcus Hook, Pa., by the Sinclair Refining Co. The structure is built of concrete and steel, and has a channel frontage of 1,000 feet with 32 to 35 feet of water alongside at mean low water. It is described under reference No. 20 in the table on page 20.

At Chester, Pa., the Ford Motor Co. has erected a new pier with facilities for loading automobiles on ocean-going vessels, and the Scott Paper Co. has reconstructed wharf frontage at its plant to facilitate the handling of wood pulp. These wharves are described under reference Nos. 29 and 38, respectively, in the table on pages 23 and 26.

FUEL AND SUPPLIES

ELECTRIC CURRENT

New Castle, Edgemoor, and Claymont, Del., are served by the Delaware Power & Light Co., the standard service being alternating current, 110 volts, single-phase, 60-cycle for lighting, and alternating current, 220 volts, single-phase, 60-cycle for power. At ports on the Pennsylvania shore below Philadelphia, the standard service supplied by the Philadelphia Electric Co. is alternating current, 110–220 volts, single-phase, 60-cycle for lighting, and alternating current, 440–2,300 volts, 3-phase, 60-cycle for power. At localities on the New Jersey side of the river below Gloucester, the Public Service Electric & Gas Co. supplies alternating current, 110 volts, single-phase, 60-cycle for lighting, and alternating current, 220 volts, 3-phase, 60-cycle for power.

WATER SUPPLY

Water for boiler use may be taken directly from the river. The availability of fresh water at the individual terminals is shown in the detailed tabular description of piers, wharves, and docks, beginning on page 14.

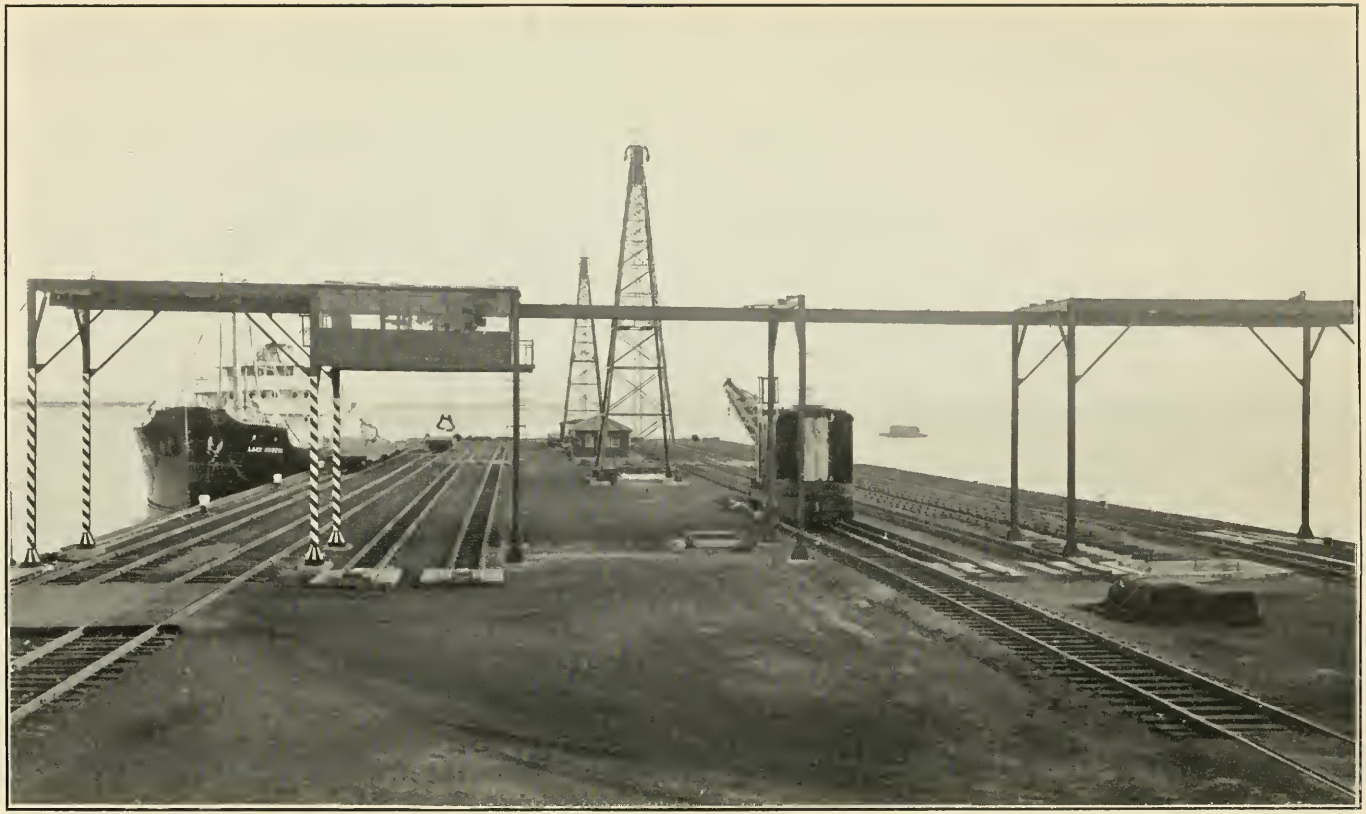
OIL BUNKERING

Facilities for supplying bunker fuel oil to vessels are available at Marcus Hook, Pa., and Paulsboro, N. J., which are described in detail on pages 14 and 70, respectively. Bunkering facilities are also available at Philadelphia, Pa., and are discussed in Port Series Report No. 4, the Ports of Philadelphia, Pa., Camden and Gloucester, N. J.

COAL BUNKERING

Coal bunkering facilities are available at Philadelphia, Pa., and are discussed in Port Series Report No. 4, the Ports of Philadelphia, Pa., Camden and Gloucester, N. J.

AERIAL VIEW OF A SECTION OF WATER FRONT AT MARCUS HOOK, PA.



View of Ford Motor Co. Pier at Chester, Pa.

PORT AND HARBOR FACILITIES

PIERS, WHARVES, AND DOCKS

There are a total of 63 wharves at the ports on the Delaware River between New Castle, Del., and Philadelphia, Pa., providing berthing space totaling 35,242 linear feet, or more than 6½ miles. The depths alongside the wharves range up to 35 feet at mean low water. Thirty percent have less than 10 feet of water alongside, 32 percent have from 10 to 19 feet, 22 percent have from 20 to 29 feet, and 16 percent have 30 feet and over.

The greatest number of terminals at any one of the localities in this area are at Chester, Pa., where 24 wharves with a total berthing space of 14,409 linear feet are situated. Paulsboro, N. J., ranks second with 11 wharves having 5,177 feet of berthing space.

The details of the piers, wharves, and docks at the ports on Delaware River below Philadelphia are shown in the following table. Further reference to them is found elsewhere in this report where the various ports are described.

Piers, wharves, and docks (except drydocks)

DELAWARE RIVER, NEW CASTLE, DEL., TO PHILADELPHIA, PA.

Reference number on map	1	2	3
Name	City wharf	New Castle ferry	Pennsville ferry
Location on water front	Foot of Delaware St., New Castle, Del	Foot of Chestnut St., New Castle, Del	Foot of Main St., Pennsville, N. J.
Owned by	City of New Castle	Delaware-New Jersey Ferry Co	Delaware-New Jersey Ferry Co.
Operated by	do	do	Do.
Purpose for which used	Public wharf	Passenger and vehicular ferry to Pennsville, N. J.	Passenger and vehicular ferry to New Castle, Del.
Type of construction	Concrete retaining walls, solid fill	Two ferry slips. Timber ferry racks and landing bridges.	Two ferry slips. Timber ferry racks and landing bridges.
	Lower side / Upper side / Face or end		
Description:			
Dimensions	*Feet* 70+25+65 / 260 / 110		
Depth of water, m. l. w	7-0 / 7-0 / 7		
Berthing space available	70+25+65 / 260 / 110		
Width of apron	Open wharf		
Deck above m. l. w	10 feet		
Capacity per square foot	500 pounds		
Lighted or unlighted	Lighted		
Transit sheds on pier	None	None	None.
Mechanical handling facilities	do	do	Do.
Railway connections	do	do	Do.
Steamship lines using terminal	do	do	Do.
Water supply	Available to vessels at 30 cents per 1,000 gallons, minimum charge $1.50.	None for vessels	None for vessels.
Fire protection	City service	City service	City service.
Electric current	None for vessels	None for vessels	None for vessels.

Reference number on map / Name	4 Wilson Line pier			5 Deepwater generating station wharf	6 Du Pont main wharf		
Location on water front	500 feet above Pennsville ferry, Pennsville, N. J.			Below Salem Canal, Deepwater Point, N. J.	Above Salem Canal, Deepwater Point, N. J.		
Owned by	Wilson Line			American Gas & Electric Co. and United Gas & Improvement Co.	E. I. du Pont de Nemours & Co., Inc.		
Operated by	do			Deepwater Operating Co	Do.		
Purpose for which used	Steamboat passenger landing			Receipt of coal	Handling of raw materials and finished chemical products.		
Type of construction	Open pile pier, timber deck, covered by open passenger shed.			Open pile wharf	Open pile wharf, parallel to and 325 feet from shore line, with curved approach.		
	Lower side	Upper side	Face or end	Shore wharf	Inner side	Outer side	End
Description:	*Feet*	*Feet*	*Feet*		*Feet*	*Feet*	*Feet*
Dimensions	450+25+50	450+25+50	95	500 feet	490	490	57
Depth of water, m. l. w	6-0	6-0	6	25 feet	11	30	
Berthing space available	50	50	95	500 feet	490	600 with dolphins	
Width of apron	Open pier			Open wharf	Open wharf.		
Deck above m. l. w	8			10 feet	10 feet.		
Capacity per square foot					350 pounds.		
Lighted or unlighted	Lighted			Lighted	Lighted.		
Transit sheds on pier	None			None	None.		
Mechanical handling facilities	do			1 electric traveling coal hoist, capacity 300 tons per hour; 1 tractor crane, 45-foot reach, maximum capacity 25 tons; 1 steam locomotive crane, 70-foot reach, capacity, with outriggers, 22 tons at 19-foot radius and 3½ tons at 70-foot radius.	3 15-ton steam locomotive cranes, each with 50-foot reach; pipe lines 1 12-inch molasses line, 1 12-inch fuel oil line, 1 2-inch drinking water line, and 2 3-inch acid lines.		
Railway connections	do			Plant trackage connects with Pennsylvania R. R.; 1 400-foot surface on open wharf.	Plant trackage connects with Pennsylvania R. R. and Reading Co.; 4 surface tracks on open wharf, total length 1,820 feet.		
Steamship lines using terminal	Wilson Line			None	None.		
Water supply	None for vessels			Drinking water from driven wells available to vessels berthing at wharf.	None for vessels.		
Fire protection	Local fire department service			Plant apparatus. Water line, hydrants, and hose.	Plant apparatus. Water line, hydrants, and hose.		
Electric current	None for vessels			None for vessels	None for vessels.		

Piers, wharves, and docks (except drydocks)—Continued

Reference number on map	7	8	9
Name	DuPont carfloat bridge	DuPont passenger and freight wharf	Pennsgrove ferry
Location on water front	Above Salem Canal, at Deepwater Point, N. J.	Above Salem Canal, at Deepwater Point, N. J.	Foot of Main St., Pennsgrove, N. J.
Owned by	E. I. du Pont de Nemours & Co., Inc	E. I. du Pont de Nemours & Co., Inc	Delaware-New Jersey Ferry Co.
Operated by	do	do	Do.
Purpose for which used	Transfer of cars to and from floats	Handling of freight and passengers	Passenger and vehicular ferry to Wilmington, Del.
Type of construction	One carfloat bridge	Open pile wharf	1 ferry slip. Timber ferry racks and landing bridge.
Description:		Lower side / Upper side / Face or end / Approach	
Dimensions		*Feet* 45 / *Feet* 45 / *Feet* 65 / *Feet* 150 x 14	
Depth of water, m. l. w		8 / 2 / 16 /	
Berthing space available		45 / / 65 /	
Width of apron		13 / 2 / 27 /	
Deck above m. l. w		10 / / /	
Capacity per square foot		300 pounds	
Lighted or unlighted		Lighted	
Transit sheds on pier	None		None.
Type of construction		Wood frame	
Length and width		50 by 18 feet	
Total floor area		900 square feet	
Number of floors		1	
Allowable floor load per square foot.		300 pounds	
Lighted or unlighted		Lighted	
Mechanical handling facilities	None	None	Do.
Railway connections	A double track connects with plant trackage and extends to the floatbridge.	A single narrow-gage track extends to wharf	Do.
Steamship lines using terminal	None	Wilson Line	Do.
Water supply	None to vessels	None to vessels	None to vessels.
Fire protection	Plant apparatus. Water lines, hydrants, and hose.	Plant apparatus. Water line, hydrants, and hose.	Portable equipment.
Electric current	None for vessels	None for vessels	None for vessels.
Remarks		The passengers using this wharf are employees transported to and from points on the opposite side of the river.	

Reference number on map / Name	10 Wilson Line pier				11 Du Pont wharf				12 Lighthouse pier, south		
Location on water front	Foot of Main St., Pennsgrove, N. J.				550 feet above foot of Edgemoor Rd., Edgemoor, Del.				At Edgemoor, Del., 1,600 feet above foot of Edgemoor Rd.		
Owned by	Delaware-New Jersey Ferry Co.				E. I. du Pont de Nemours & Co., Inc.				U. S. Government.		
Operated by	Wilson Line				do				Department of Commerce, Lighthouse Service.		
Purpose for which used	Handling general cargo and passengers				Receipt of acid and oil				Lighthouse service depot.		
Type of construction	Sheet steel piling, solid fill				Sheet steel piling, solid fill, and concrete deck; connected to shore by steel truss bridge.				Concrete retaining walls, solid fill, and concrete deck.		
	Lower side	Upper side	Face or end	Approach	Lower side	Upper side	Face or end	Approach	Lower side	Upper side	Face or end
Description:	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*
Dimensions	250	180	90+50	600 x 40	19+19	19+19	40	340 x 6	316	316	29
Depth of water, m. l. w.	0	8	12		16	16	16		2	15	17
Berthing space available		180	90+50				300 with dolphins		316	316	29
Width of apron	Open	0	Open		Open wharf				Open pier.		
Deck above m. l. w.	10 feet				13 feet				12 feet.		
Capacity per square foot	500 pounds								800 pounds.		
Lighted or unlighted	Lighted				Lighted				Lighted.		
Transit sheds on pier					None				None.		
Type of construction	Wood frame										
Length and width	60 by 30 feet										
Total floor area	1,500 square feet										
Number of floors	1										
Allowable floor load per square foot.	500 pounds										
Lighted or unlighted	Lighted										
Mechanical handling facilities	None				Pipe lines: 1 8-inch oil line, 1 6-inch acid line, 1 3-inch water intake line, and 2-inch air and steam lines.				Do.		
Railway connections	do				None				Do.		
Steamship lines using terminal	Wilson Line				do				Do.		
Water supply	None for vessels				None for vessels				Available to Government vessels.		
Fire protection	Portable extinguishers				Plant apparatus				Depot equipment.		
Electric current	None for vessels				None for vessels				None for vessels.		

Piers, wharves, and docks (except drydocks)—Continued

Reference number on map	13			14			15		
Name	Lighthouse pier, north			Texas Co. pier			General Chemical Co. pier		
Location on water front	At Edgemoor, Del., 1,800 feet above foot of Edgemoor Rd.			At Claymont, Del., 1,400 feet above mouth of Naamans Creek.			At Claymont, Del., 1,800 feet above mouth of Naamans Creek.		
Owned by	U. S. Government			The Texas Co			General Chemical Co.		
Operated by	Department of Commerce, Lighthouse Service			do			Do.		
Purpose for which used	Lighthouse Service depot			Receipt and shipment of petroleum products			Receipt and shipment of chemicals.		
Type of construction	Concrete retaining walls, solid fill, and concrete deck.			Open pile pier, timber deck			Open pile pier, timber deck.		
	Lower side	Upper side	Face or end	Lower side	Upper side	Face or end	Lower side	Upper side	Face or end
Description:									
Dimensions	*Feet* 316	*Feet* 316	*Feet* 41	*Feet* 852	*Feet* 602+250	*Feet* 56	*Feet* 821	*Feet* 698	*Feet* 80
Depth of water, m. l. w	15	5	21	28	22–15	30	26–0	26–12	26
Berthing space available	316	316	41	410	250+125	56	821	698	80
Width of apron	Open pier			26	0	50	Open pier.		
Deck above m. l. w	12 feet			12 feet			11 feet.		
Capacity per square foot	800 pounds			350 pounds			500 pounds.		
Lighted or unlighted	Lighted			Lighted			Lighted.		
Transit sheds on pier	None						None.		
Type of construction				Timber frame, metal covered					
Length and width				181 by 30 feet					
Total floor area				5,400 square feet					
Number of floors				1					
Allowable floor load per square foot.				350 pounds					
Lighted or unlighted				Lighted					
Mechanical handling facilities	None			9 4-inch, 4 6-inch, and 2 8-inch pipe lines			2 electric 15-ton traveling revolving cranes on trestle, each with 45-foot reach; 80 steel hoppers, 110 cubic feet capacity each, on trestle; car pit and belt conveyor; 1 6-inch acid pipe line and 1 6-inch oil pipe line.		
Railway connections	do			Plant trackage connects with Pennsylvania R. R.; 1 852-foot surface track on pier.			None.		
Steamship lines using terminal	do			None			Do.		
Water supply	Available to Government vessels			Available to vessels at $1 per 1,000 gallons			None for vessels.		
Fire protection	Depot equipment			Hydrants, hose, chemical engine, portable extinguishers, and city service.			Hydrants, chemical extinguishers, and city service.		
Electric current	None for vessels			None for vessels			None for vessels.		

Reference number on map / Name	16 Quarantine station pier				17 Pure Oil Co. pier			18 Sun Oil Co. pier, lower		
Location on water front	Below foot of Blue Ball Ave., Marcus Hook, Pa.				Above foot of Blue Ball Ave., Marcus Hook, Pa.			Foot of Hewes St., Marcus Hook, Pa.		
Owned by	State of Pennsylvania				The Pure Oil Co			Sun Oil Co.		
Operated by	U. S. Public Health Service				do			Do.		
Purpose for which used	Berth and landing for vessels of Public Health Service.				Receipt and shipment of petroleum products; bunkering vessels.			Receipt and shipment of petroleum products; bunkering vessels.		
Type of construction	Open pile wharf, timber deck				Open pile pier, timber deck			Concrete retaining walls, solid fill.		
	Lower side	Upper side	Face or end	Approach	Lower side	Upper side	Face or end	Lower side	Upper Side	Face or end
Description:	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*
Dimensions	80	80	50	400 x 10	506	506	62	600	520	320
Depth of water, m. l. w.	8	8	12		23-2	23-0	23	30-0	30-20	30
Berthing space available	80	80	50		506	506	162 with dolphins	600	520	320
Width of apron	Open wharf				Mainly open pier			Open pier.		
Deck above m. l. w.	10 feet				11 feet			11 feet.		
Capacity per square foot	250 pounds				450 pounds			600 pounds.		
Lighted or unlighted	Lighted				Lighted			Lighted.		
Transit sheds on pier	None							None.		
Type of construction					Timber frame, metal covered					
Length and width					257 x 38 feet					
Total floor area					9,700 square feet					
Number of floors					1					
Allowable floor load per square foot.					450 pounds					
Lighted or unlighted					Lighted					
Mechanical handling facilities	None				1 4-inch, 5 6-inch, 2 8-inch, and 2 10-inch pipe lines; 2 stiff-leg hose derricks.			Pipe line connections for loading tankers and bunkering.		
Railway connections	do				Plant trackage connects with Pennsylvania R. R. and Reading Co.; 1 480-foot surface track on pier.			Plant trackage connects with Pennsylvania R. R. and Reading Co.; 1 450-foot surface track on pier.		
Steamship lines using terminal	do				None			None.		
Water supply	None for vessels				Available to vessels at 35 cents per ton			None for vessels.		
Fire protection	City service				Foamite system, hydrants, and city service			Plant apparatus and city service.		
Electric current	None for vessels				None for vessels			None for vessels.		

Piers, wharves, and docks (except drydocks)—Continued

Reference number on map	19			20				21			
Name	Sun Oil Co. pier, upper			Sinclair Refining Co., Wharf				Cities Service Oil Co. wharf			
Location on water front	Above foot of Hewes Street, Marcus Hook, Pa.			400 feet above foot of Church Street, Marcus Hook, Pa.				Foot of Booth Street, Chester, Pa.			
Owned by	Sun Oil Co.			Sinclair Refining Co.				Cities Service Oil Co.			
Operated by	do.			do.				Petrol Corporation.			
Purpose for which used	Receipt and shipment of petroleum products.			Receipt and shipment of petroleum products; bunkering vessels.				Receipt of petroleum products.			
Type of construction	Open pile pier, timber deck.			Concrete retaining walls, solid fill with concrete deck. Part is structural steel on steel piling with concrete deck. Open pile approach.				Timber crib, solid fill, with pipe trestle extending to shore.			
	Lower side	Upper side	Face or end	Lower side	Upper side	Face or end	Approach	Lower side	Upper side	Face or end	Trestle
Description:	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*
Dimensions	433	374	80	80	80	1,000	223 x 40	83	83	83	840 x 2
Depth of water, m. l. w.	30–20	30–0	30	27	27	35–32				12	
Berthing space available	400	312	80	80	80	1,000				83	
Width of apron	Open pier.			Open wharf.				Open wharf.			
Deck above m. l. w.	10 feet.			11 feet.				12 feet.			
Capacity per square foot	600 pounds.			800 pounds.				800 pounds.			
Lighted or unlighted	Lighted.			Lighted.				Unlighted.			
Transit sheds on pier	None.							None.			
Type of construction				Steel frame, metal covered.							
Length and width				195 by 40 feet.							
Total floor area				6,400 square feet.							
Number of floors				1.							
Allowable floor load per square foot.				800 pounds.							
Lighted or unlighted				Lighted.							
Mechanical handling facilities	Pipe line for loading oil on tankers.			1 link-belt conveyor; roller conveyors; 1 tractor; 22 trailers; 24 hand trucks; 1 2-inch, 1 3-inch, 3 4-inch, 7 6-inch, 5 8-inch, 1 10-inch, and 2 12-inch pipe lines.				8-inch pipe line extends to storage tanks in rear.			
Railway connections	Plant trackage connects with Pennsylvania R. R. and Reading Co.; 3 surface tracks on pier, total length 900 feet.			None.				None.			
Steamship lines using terminal	None.			do.				Do.			
Water supply	Available to vessels at 35 cents per ton.			Available to vessels at $1.30 per 1,000 gallons.				None for vessels.			
Fire protection	Plant apparatus and city service.			Foamite system, hydrants, hose, and city service.				City service.			
Electric current	None for vessels.			None for vessels.				None for vessels.			
Remarks				Additional berthing space amounting to 648 + 101 lineal feet is available on the rear side of wharf.							

Reference number on map	22			23			24		
Name	South Chester Terminal pier			Delaware River Steel Co. pier			Philadelphia Electric Co. wharf		
Location on water front	Below foot of Thurlow St., Chester, Pa.			Foot of Wilson St., Chester, Pa.			Foot of Ward St., Chester, Pa.		
Owned by	South Chester Tube Co.			Delaware River Steel Co.			Philadelphia Electric Co.		
Operated by	South Chester Terminal & Warehousing Co.			Not operated			Do.		
Purpose for which used	Handling of general cargo in coastwise and foreign trade; receipt of petroleum products.			Not in use			Receipt of coal.		
Type of construction	Open pile, except outer 30 feet which is steel sheet piling and solid fill.			Concrete retaining walls, solid fill			Concrete retaining walls, solid fill.		
	Lower side	Upper side	Face or end	Lower side	Upper side	Face or end	Lower side	Upper side	Face or end
Description:	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*
Dimensions	436	436	41	430	225	68	364	608	400
Depth of water, m. l. w.	34–17	34–17	34	12–0	12	12	18	18	18
Berthing space available	370	390	41	420	225	68	364	575	400
Width of apron	Open pier			Open pier			72	72	79–125
Deck above m. l. w.	12 feet			12 feet			13 feet.		
Capacity per square foot	1,000 pounds						1,000 pounds.		
Lighted or unlighted	Lighted			Lighted			Lighted.		
Transit sheds on pier	None			None			None.		
Mechanical handling facilities	1 gasoline locomotive crane, 40-foot reach, capacity 15 tons at 12-foot radius; 1 steam locomotive crane, 60-foot reach, capacity 40 tons at 12-foot radius; 45- and 52-inch lifting magnets; one 6-inch pipe line extends to storage tanks of Petrol Corporation adjoining the terminal.			One 12½-ton electric traveling straight-line gantry crane, 52-foot reach; 3 steam locomotive cranes, each with 40-foot reach, capacities 15 tons at 15-foot radius.			2 electric straight-line cranes, capacities 180 tons of coal per hour each; 1 steam locomotive crane, 52-foot reach, capacity 18 tons at 15-foot radius and 4 tons at 52-foot radius; 2 steam locomotive cranes, each with 60-foot reach, capacities 28 tons at 15-foot radius and 4½ tons at 60-foot radius.		
Railway connections	Terminal trackage connects with Pennsylvania R. R. and Reading Co.; 2 tracks on open pier, total length 852 feet.			Plant trackage connects with Pennsylvania R. R. and Reading Co.; 2 surface tracks on open wharf, total length 640 feet.			Plant trackage connects with Pennsylvania R. R. and Reading Co.; 4 surface tracks, total length 1,200 feet.		
Steamship lines using terminal	Moore & McCormack; Quaker Line.			None			None.		
Water supply	Available to vessels at 30 cents per 100 cubic feet, minimum charge $1.			None for vessels			None for vessels.		
Fire protection	Chemical engine, Foamite, hydrants and hose, and city service.			City service			Plant apparatus and city service.		
Electric current	Available to vessels			None for vessels			None for vessels.		
Lighting	$1 per light per night								
Power	10 cents per kilowatt-hour								

Piers, wharves, and docks (except drydocks)—Continued

Reference number on map	25	26	27
Name	Chester ferry	Philadelphia Electric Co. bulkhead	American Dyewood Co. wharf
Location on water front	Foot of Flower St., Chester, Pa.	Between foot of Central Ave. and Norris St., Chester, Pa.	Between foot of Norris and Lamokin Sts., Chester, Pa.
Owned by	Delaware River Ferry Co.	Philadelphia Electric Co.	American Dyewood Co.
Operated by	do.	do.	Do.
Purpose for which used	Passenger and vehicular ferry to Bridgeport, N. J.	Not used for wharfage purposes.	Receipt of logwood.
Type of construction	1 ferry slip. Timber ferry racks and landing bridge.	Concrete retaining wall, solid fill.	Concrete retaining wall, solid fill.
		Bulkhead wharf	Bulkhead wharf
Description:			
Dimensions		622 feet.	654 feet.
Depth of water, m. l. w.		12–2 feet.	15–12 feet.
Berthing space available		622 feet.	200 feet.
Width of apron		Open wharf.	Open wharf.
Deck above m. l. w.		10 feet.	9 feet.
Capacity per square foot		500 pounds.	800 pounds.
Lighted or unlighted		Lighted.	Unlighted.
Transit sheds on pier	None.	None.	None
Mechanical handling facilities	do.	1 steam locomotive crane, 50-foot reach, capacity 14½ tons at 17-foot radius and 3¼ tons at 50-foot radius; 1 10-ton tractor crane, 40-foot reach.	3 electric 1-ton traveling A-frame derricks, each with 50-foot reach; 1 tractor crane, 35-foot reach, capacity 8 tons at 11-foot radius and 1¾ tons at 35-foot radius; narrow-gage railway with flat cars.
Railway connections	do.	Plant trackage connects with Pennsylvania R. R. and Reading Co.; 1 450-foot surface track at front of wharf.	None.
Steamship lines using terminal	do.	None.	Do.
Water supply	None for vessels.	None for vessels.	None for vessels.
Fire protection	City service.	Plant apparatus and city service.	City service.
Electric current	None for vessels.	None for vessels.	None for vessels.

Reference number on map / Name	28 Philadelphia Quartz Co. wharf		29 Ford Motor Co. pier				30 Chester Water Service Co. wharf				
										Bulkhead wharf	
	Upper side	Face	Lower side	Upper side	Face or end	Bulkhead wharf	Lower side of slip	Upper side of slip	Head of slip	Lower	Upper
Description:											
Dimensions	*Feet* 175	*Feet* 310	*Feet* 520	*Feet* 520	*Feet* 150	*Feet* 778	*Feet* 160	*Feet* 140	*Feet* 70	*Feet* 140	*Feet* 150
Depth of water, m. l. w	6–0	6	22–6	23–6	25	15–6	2–0	2	0	2–0	2–0
Berthing space available		310	500	500	150	778	100	140	0	140	80
Width of apron	Open wharf		Open pier				Open wharf.				
Deck above m. l. w	12 feet		12 feet				12 feet.				
Capacity per square foot	800 pounds		800 pounds								
Lighted or unlighted	Unlighted		Lighted				Unlighted.				
Transit sheds on pier	None		None				None.				
Mechanical handling facilities	1 steam locomotive crane, 50-foot reach, capacity 20 tons at 12-foot radius.		Monorail conveyor across pier; 2 steel cargo masts; 7 link-belt conveyors; 2 steam locomotive cranes with 38- and 55-foot booms; capacities, without outriggers, 38-foot boom, 44½ tons at 12-foot radius and 7½ tons at 38-foot radius; with 55-foot boom, 20 tons at 18-foot radius and 4¼ tons at 55-foot radius. With outriggers, either boom, 37 tons at 12-foot radius, 8½ tons at 38-foot radius, and 4½ tons at 55 foot radius.				Do.				
Railway connections	Plant trackage connects with Pennsylvania R. R. and Reading Co.; 1 100-foot surface track near edge of wharf.		Plant trackage connects with Pennsylvania R. R. and Reading Co.; 3 surface tracks on open wharf, total length 1,500 feet; 1 650-foot surface track on bulkhead.				Do.				
Steamship lines using terminal	None		None				Do.				
Water supply	None for vessels		Available to vessels at 20 cents per ton, minimum charge $5.				None for vessels.				
Fire protection	Plant apparatus and city service		Hydrants, hose, foamite and acid extinguishers, and city service.				City service.				
Electric current	None for vessels		None for vessels				None for vessels.				

Piers, wharves, and docks (except drydocks)—Continued

Reference number on map	31			32		33	
Name	Chester Materials Co. wharf			Edgemont Ave. wharf		Consumers Ice & Coal Co. wharf	
Location on water front	Foot of Franklin St., Chester, Pa.			Upper side of mouth of Chester Creek, Chester, Pa.		Above mouth of Chester Creek, Chester, Pa.	
Owned by	Chester Materials Co.			U. S. Government		Consumers Ice & Coal Co.	
Operated by	do			Not operated		Do.	
Purpose for which used	Receipt of sand and gravel			Not in use		Tie-up of harbor craft.	
Type of construction	Timber bulkheads, solid fill			Concrete retaining wall, solid fill		Timber bulkhead, solid fill.	
	Lower side	Upper side	Face or end	Lower side	Face or end	Upper side	Face or end
Description:							
Dimensions	*Feet* 100	*Feet* 100	*Feet* 250	*Feet* 127	*Feet* 30	*Feet* 300+40+120	*Feet* 270
Depth of water, m. l. w	12—0	8	12	8—6	8	8—6	8—6
Berthing space available	50	100	250	127	30	300+40+120	270
Width of apron	Open wharf			Open wharf		Open wharf.	
Deck above m. l. w	12 feet			10 feet		10 feet.	
Capacity per square foot	500 pounds					800 pounds.	
Lighted or unlighted	Unlighted			Unlighted		Unlighted.	
Transit sheds on pier	None			None		None.	
Mechanical handling facilities	1 steam locomotive crane, 50-foot reach, capacity 25 tons at 12-foot radius and 4 tons at 50-foot radius; 1 tractor crane, 50-foot reach, capacity 15 tons at 12-foot radius and 2 tons at 50-foot radius; car pit and belt conveyor for bulk cement.			do		Do.	
Railway connections	Plant trackage connects with Pennsylvania R. R. and Reading Co.; 2 surface tracks on open wharf, total length 480 feet.			do		Do.	
Steamship lines using terminal	None			do		Do.	
Water supply	None for vessels			None for vessels		None for vessels.	
Fire protection	City service			City service		City service.	
Electric current	None for vessels			None for vessels		None for vessels.	

Reference number on map / Name	34 Scott Paper Co. bulkhead		35 Chester Shipping Co. wharf		36 Market St. pier		
Location on water front	On upper, inner side of slip between foot of Edgemont Ave. and Market St., Chester, Pa.		South of foot of Market St., Chester, Pa.		Foot of Market St., Chester, Pa.		
Owned by	Scott Paper Co		Chester Shipping Co		City of Chester, Pa.		
Operated by	do		Ericsson Line, Inc		Wilson Line.		
Purpose for which used	Receipt of fuel oil and tie-up of barges		Handling of general cargo in inland waterway trade.		Steamboat passenger landing.		
Type of construction	Timber bulkhead		Concrete bulkhead		Concrete retaining walls, solid fill, concrete deck.		
	Upper side	Bulkhead wharf	Lower side	Face or end	Lower side	Upper side	Face or end
Description:	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*
Dimensions	208	30	248	285	105	80	89
Depth of water, m. l. w	8	8	8	11	18	20	18
Berthing space available	208	30	248	285	105	80	89
Width of apron	Open wharf		Open wharf	Partly, 10	Open pier.		
Deck above m. l. w	8 feet		8 feet		8 feet.		
Capacity per square foot	1,000 pounds		1,000 pounds		1,000 pounds.		
Lighted or unlighted	Lighted		Lighted		Lighted.		
Transit sheds on pier	None				None.		
Type of construction			Wood				
Length and width			150 by 65 feet				
Total floor area			18,000 square feet				
Number of floors			2				
Height between floors			10 feet				
Allowable floor load per square foot.			1,000 pounds				
Lighted or unlighted			Lighted				
Mechanical handling facilities	1 6-inch fuel oil pipe line		1 10-ton fixed derrick, 20-foot reach, manually operated.		4-wheeled trucks.		
Railway connections	None		None		None.		
Steamship lines using terminal	None		Ericsson Line		Wilson Line.		
Water supply	None for vessels		None for vessels		None for vessels.		
Fire protection	City service		Hydrants, hose, portable extinguishers, and city service.		City service.		
Electric current	None for vessels		None for vessels		None for vessels.		

Piers, wharves, and docks (except drydocks)—Continued

Reference number on map	37	38				39		
Name	Scott Paper Co. bulkhead	Scott Paper Co. pier				Harbison-Walker pier		
Location on water front	Above foot of Market St., Chester, Pa.	240 feet above foot of Market St., Chester, Pa.				600 feet above foot of Welch St., Chester, Pa.		
Owned by	Scott Paper Co.	Scott Paper Co.				Harbison-Walker Refractories Co.		
Operated by	do	do				Do.		
Purpose for which used	Receipt of wood pulp	Receipt of wood pulp				For storage purposes only.		
Type of construction	Concrete retaining wall, solid fill	Open pile pier, timber deck				Concrete pier and deck.		
	Bulkhead wharf	Lower side	Upper side	Face or end	Approach	Lower side	Upper side	Face or end
Description:								
Dimensions	280 feet	*Feet* 38	*Feet* 38	*Feet* 115	*Feet* 66 x 35	*Feet* 450	*Feet* 360	*Feet* 75
Depth of water, m. l. w.	10 feet	12	12	13–12		9		
Berthing space available	280 feet	38	38	115		450		
Width of apron	Partly open	Open pier				25 feet.		
Deck above m. l. w.	12 feet	10 feet				15 feet.		
Capacity per square foot	1,000 pounds	150 pounds				1,800 pounds.		
Lighted or unlighted	Lighted	Lighted				Unlighted.		
Transit sheds on pier	None	None						
Type of construction						Wood frame, metal covered.		
Length and width						320 by 50 feet.		
Total floor area						16,000 square feet.		
Number of floors						1.		
Height between floors						20 feet.		
Allowable floor load per square foot.						1,500 pounds.		
Lighted or unlighted						Lighted.		
Mechanical handling facilities	1 electric stiff-leg derrick, 30-foot reach, capacity 2 tons at 30-foot radius; 1 electric stiff-leg derrick, 80-foot reach, capacity 5 tons at 80-foot radius; 1 electric slat conveyor, capacity 240 tons per hour.	1 electric slat conveyor, capacity 240 tons per hour.						
Railway connections	None	None				Pier trackage connects with Reading Co.; 1 400-foot depressed track on apron of lower side.		
Steamship lines using terminal	do	do				None.		
Water supply	None for vessels	None for vessels				None for vessels.		
Fire protection	Plant apparatus and city service	Plant apparatus and city service				Plant apparatus and city service.		
Electric current	None for vessels	None for vessels				None for vessels.		

Reference number on map	40			41		42		
Name	Sun Shipbuilding & Dry Dock Co. pier No. 4			Sun Shipbuilding & Dry Dock Co. wharf No. 3-A		Sun Shipbuilding & Dry Dock Co. pier No. 3		
Location on water front	Foot of Morton Ave., Chester, Pa.			Foot of Morton Ave., Chester, Pa.		Foot of Morton Ave., Chester, Pa.		
Owned by	Sun Shipbuilding & Dry Dock Co.			Sun Shipbuilding & Dry Dock Co.		Sun Shipbuilding & Dry Dock Co.		
Operated by	do.			do.		Do.		
Purpose for which used	Berthing floating drydock and vessels undergoing repair.			Berthing floating drydock.		Fitting-out pier.		
Type of construction	Concrete retaining walls, solid fill.			Concrete retaining walls, solid fill.		Concrete retaining walls, solid fill.		
	Lower side	Upper side	Face or end	Lower side	Face or end	Lower side	Upper side	Face or end
Description:								
Dimensions	*Feet* 230	*Feet* 960	*Feet* 60	*Feet* 460	*Feet* 150	*Feet* 500	*Feet* 500	*Feet* 60
Depth of water, m. l. w.	20	34–23	20	26	15	20	18	20
Berthing space available	230	910	60	410	150	500	500	60
Width of apron	Open pier.			Open wharf.		Open pier.		
Deck above m. l. w.	10 feet.			10 feet.		10 feet.		
Capacity per square foot	800 pounds.			800 pounds.		800 pounds.		
Lighted or unlighted	Lighted.			Lighted.		Unlighted.		
Transit sheds on pier	None.			None.		None.		
Mechanical handling facilities	1 electric traveling revolving gantry crane, 100-foot reach, capacity 17 tons at 30-foot radius, 5 tons at 80-foot radius, and 1½ tons at 100-foot radius; 2 electric winches for moving vessels.			1 electric traveling revolving gantry crane, 100-foot reach, capacity 15 tons at 52-foot radius, 10 tons at 65-foot radius, and 2 tons at 100-foot radius.		1 electric winch for moving vessels.		
Railway connections	Plant trackage connects with Pennsylvania R. R. and Reading Co.; 1 895-foot surface track on open pier.			Plant trackage connects with Pennsylvania R. R. and Reading Co.; 1 410-foot surface track on open wharf.		Plant trackage connects with Pennsylvania R. R. and Reading Co.; 2 surface tracks on open pier, total length 980 feet.		
Steamship lines using terminal	None.			None.		None.		
Water supply	Available to vessels at 75 cents per ton.			Available to vessels at 75 cents per ton.		Available to vessels at 75 cents per ton.		
Fire protection	Hydrants, hose, and city service.			Hydrants, hose, and city service.		Hydrants, hose, and city service.		
Electric current	None for vessels.			None for vessels.		None for vessels.		

Piers, wharves, and docks (except drydocks)—Continued

Reference number on map	43			44			45
Name	Sun Shipbuilding & Dry Dock Co. pier No. 2			Sun Shipbuilding & Dry Dock Co. pier No. 1			Bridgeport Ferry
Location on water front	Foot of Morton Ave., Chester, Pa.			Foot of Morton Ave., Chester, Pa.			Foot of Ferry Road on Raccoon Island, Bridgeport, N. J.
Owned by	Sun Shipbuilding & Dry Dock Co.			Sun Shipbuilding & Dry Dock Co.			Delaware River Ferry Co.
Operated by	do.			do.			Do.
Purpose for which used	Fitting-out pier.			Fitting-out pier.			Passenger and vehicular ferry to Chester, Pa.
Type of construction	Concrete retaining walls, solid fill.			Concrete retaining walls, solid fill.			1 ferry slip. Timber ferry racks and landing bridge.
	Lower side	Upper side	Face or end	Lower side	Upper side	Face or end	
Description:	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	
Dimensions	500	600	60	600	60	60	
Depth of water, m. l. w.	18	24	24	24	24	24	
Berthing space available	500	600	60	600	60	60	
Width of apron	Open pier.			Open pier.			
Deck above m. l. w.	10 feet.			10 feet.			
Capacity per square foot	800 pounds.			800 pounds.			
Lighted or unlighted	Lighted.			Lighted.			
Transit sheds on pier	None.			None.			None.
Mechanical handling facilities	1 electric traveling revolving gantry crane, 100-foot reach, capacity 15 tons at 52-foot radius, 10 tons at 65-foot radius, 5 tons at 79-foot radius, and 4 tons at 100-foot radius.			1 electric revolving hammerhead crane, 110-foot reach, capacity 120 tons at 60-foot radius, 80 tons at 76-foot radius, 30 tons at 97-foot radius, and 15 tons at 110-foot radius.			Do.
Railway connections	Plant trackage connects with Pennsylvania R. R. and Reading Co.; 1 585-foot surface track on an open wharf.			Plant trackage connects with Pennsylvania R. R. and Reading Co.; 1 595-foot surface track.			Do.
Steamship lines using terminal	None.			None.			Do.
Water supply	Available to vessels at 75 cents per ton.			Available to vessels at 75 cents per ton.			None for vessels.
Fire protection	Hydrants, hose, and city service.			Hydrants, hose, and city service.			None.
Electric current	None for vessels.			None for vessels.			None for vessels.

Reference number on map	46			47			48		
Name	Eddystone Manufacturing Co. pier			Baldwin Locomotive Works wharf			General Steel Castings Corporation oil pier		
Location on water front	Foot of Eddystone Ave., Eddystone, Pa.			Below mouth of Crum Creek, Eddystone, Pa.			On Darby Creek, Eddystone, Pa., 150 feet below Pennsylvania R. R. bridge.		
Owned by	Joseph Bancroft & Sons Co.			The Baldwin Locomotive Works.			General Steel Castings Corporation.		
Operated by	Eddystone Manufacturing Co.			do.			Do.		
Purpose for which used	Receipt of raw materials and shipment of finished products.			Shipment of locomotives and receipt of fuel oil.			Receipt of fuel oil.		
Type of construction	Timber crib, solid fill.			Timber bulkhead on lower side, concrete retaining walls on face and upper side.			Open pile pipe-line pier.		
	Lower side	Upper side	Face or end	Lower side	Upper side	Face or end	Lower side	Upper side	Face or end
Description:									
Dimensions	*Feet* 400	*Feet* 400	*Feet* 61	*Feet* 775	*Feet* 550	*Feet* 640	*Feet* 120	*Feet* 120	*Feet* 5
Depth of water, m. l. w.	18–0	18–0	18	12–10	14	12–10			9
Berthing space available	400	400	61	775	550	640			95 with dolphins
Width of apron	Open pier.			Open wharf.			13 feet.		
Deck above m. l. w.	11 feet.			14 feet.					
Capacity per square foot	500 pounds.			1,000 pounds.					
Lighted or unlighted	Lighted.			Unlighted.			Lighted.		
Transit sheds on pier	None.			None.			None.		
Mechanical handling facilities	6 1-ton flat-trucks on narrow-gage railway; 1 6-inch fuel oil pipe line extends to storage tank in rear.			1 electric traveling revolving gantry crane, 89-foot reach, capacity 60 tons at 69-foot radius, 32 tons at 75-foot radius, 18 tons at 81-foot radius, and 6 tons at 89-foot radius; 1 electric traveling revolving gantry crane, 63-foot reach, capacity 50 tons up to 54-foot radius; 1 steam locomotive crane, 50-foot reach, maximum capacity 25 tons; 2 steam locomotive cranes, each with 45-foot reach, maximum capacities 20 tons; 1 steam locomotive crane, 40-foot reach, maximum capacity 20 tons.			1 6-inch pipe line extends to storage tank in rear.		
Railway connections	None.			Plant trackage connects with Pennsylvania R. R., Baltimore & Ohio R. R., and Reading Co.; 3 surface tracks on open wharf, total length 2,700 feet.			None.		
Steamship lines using terminal	do.			None.			Do.		
Water supply	None for vessels.			Available to vessels at 21 cents per 1,000 gallons, minimum charge $10.			None for vessels.		
Fire protection	Hydrants and hose.			Hydrants, hose, and plant apparatus.			None.		
Electric current	None for vessels.			None for vessels.			None for vessels.		

Piers, wharves, and docks (except drydocks)—Continued

Reference number on map	49	50	51
Name	Yacht Repair & Storage Co. pier	DuPont car float bridge	DuPont acid wharf
Location on water front	Foot of Wanamaker Ave., Essington, Pa.	At Thompson Point, N. J.	At Thompson Point, N. J.
Owned by	U. S. Government	E. I. duPont de Nemours Co., Inc.	E. I. duPont de Nemours Co., Inc.
Operated by	Yacht Repair & Storage Co.	do.	Do.
Purposes for which used	In connection with repair yard for small craft.	Transfer of cars to and from floats.	Handling general plant freight.
Type of construction	Concrete pier, solid fill.	One car float bridge.	Timber crib, solid fill.

Description:	Lower side	Upper side	Face or end		Lower side	Upper side	Face or end
	Feet	*Feet*	*Feet*		*Feet*	*Feet*	*Feet*
Dimensions	190	160	40		190+30+200	190	40
Depth of water, m. l. w.	10–0	10–0	10		22–0	22	22
Berthing space available	50	100	40		190+30+100	190	40
Width of apron	Open pier.				Open pier.		
Deck above m. l. w.	10 feet.				10 feet.		
Capacity per square foot	600 pounds.				2,000 pounds.		
Lighted or unlighted	Lighted.				Lighted.		
Transit sheds on pier	None.			None.	None.		
Mechanical handling facilities	1 8-ton stiff-leg derrick, 55-foot reach; gasoline motor.			do.	1 steam locomotive crane, 40-foot reach, capacity 15 tons at 12-foot radius.		
Railway connections	None.			A double track connects with plant trackage and extends to the float bridge.	Plant trackage connects with Pennsylvania-Reading Seashore Lines; 1 375-foot surface track on open pier.		
Steamship lines using terminal	do.			None.	None.		
Water supply	Available to small craft.			None for vessels.	Available to vessels using the pier.		
Fire protection	City service.			Plant apparatus.	Foamite, hydrants, and hose.		
Electric current	None for vessels.			None for vessels.	None for vessels.		

Reference number on map / Name	52 Du Pont main wharf		53 Socony-Vacuum Oil Co. wharf	54 United Petroleum Co. wharf		
Location on water front	At Thompson Point, N. J.		At Bramell Point, Paulsboro, N. J.	Foot of Billingsport Road, Paulsboro, N. J.		
Owned by	E. I. du Pont de Nemours Co., Inc.		Socony-Vacuum Oil Co.	Dealers Oil Co.		
Operated by	do		do	United Petroleum Co.		
Purpose for which used	Handling general plant freight		Receipt and shipment of petroleum products; bunkering vessels.	Not in use as a wharf.		
Type of construction	Timber crib, solid fill		Concrete bulkhead, solid fill	Timber bulkheads, solid fill.		
	Upper side	Face or end	Bulkhead wharf	Lower side	Upper side	Face or end
Description:	*Feet*	*Feet*		*Feet*	*Feet*	*Feet*
Dimensions	320	400	2,500 feet	70+45+60	193	50
Depth of water, m. l. w.	26-0	26	33 feet	3-0	3-0	3
Berthing space available		400	2,500 feet			50
Width of apron	Open wharf		Open wharf	Open wharf.		
Deck above m. l. w.	8 feet		12 feet	9 feet.		
Capacity per square foot	2,000 pounds		1,000 pounds	250 pounds.		
Lighted or unlighted	Lighted		Lighted	Lighted.		
Transit sheds on pier	None			None.		
Type of construction			Hollow tile			
Length and width			400 by 80 feet			
Total floor area			32,000 square feet			
Number of floors			1			
Allowable floor load per square foot.			500 pounds			
Lighted or unlighted			Lighted			
Mechanical handling facilities	3 cargo masts; the locomotive crane described under reference No. 51 is also available on this wharf.		1 6-inch, 3 10-inch, 2 12-inch, and 1 14-inch pipe lines extend to storage tanks in rear; 1 steam locomotive crane, 50-foot reach, capacity 25 tons at 12½-foot radius; 1 tractor crane, 40-foot reach, capacity 17 tons at 12-foot radius; roller and link-belt conveyors for packaged products.	1 6-inch pipe line extends to storage tanks on wharf.		
Railway connections	Plant trackage connects with Pennsylvania-Reading Seashore Lines; 2 surface tracks on open wharf, total length 700 feet.		Plant trackage connects with Pennsylvania-Reading Seashore Lines; 1 400-foot surface track on open wharf.	None.		
Steamship lines using terminal	None		None	Do.		
Water supply	None for vessels		Available to vessels at 93 cents per 1,000 gallons	None for vessels.		
Fire protection	Plant apparatus		Foamite system and fire pumps	City service.		
Electric current	None for vessels		Available to company vessels	None for vessels.		

Piers, wharves, and docks (except drydocks)—Continued

Reference number on map	55				56	57		
Name	Patterson Oil Co. wharf				I. P. Thomas & Son Co. wharf	Grasselli lower wharf		
Location on water front	Between foot of Mantua Ave. and mouth of Mantua Creek, Paulsboro, N. J.				On left bank of Mantua Creek, 1,800 feet above mouth, Paulsboro, N. J.	On left bank of Mantua Creek, 4,000 feet above mouth, Paulsboro, N. J.		
Owned by	Patterson Oil Terminals, Inc.				I. P. Thomas & Son Co.	E. I. du Pont de Nemours & Co., Inc.		
Operated by	do.				do.	Grasselli Department of E. I. du Pont de Nemours & Co., Inc.		
Purpose for which used	Receipt and shipment of petroleum products.				Receipt and shipment of fertilizer materials.	Shipment of sulphuric acid.		
Type of construction	Open pile wharf.				Timber crib, solid fill.	Open pile pier, timber deck.		
	Lower side	Upper side	Face or end	Approach	Bulkhead wharf	Lower side	Upper side	Face or end
Description:	*Feet*	*Feet*	*Feet*	*Feet*		*Feet*	*Feet*	*Feet*
Dimensions	20	20	56	500 x 12	550 feet.	50	50	8
Depth of water, m. l. w.			30		9–5 feet.			8
Berthing space available			522 with dolphins		550 feet.			220 with dolphins
Width of apron	Open wharf.				Open wharf.	Open pier.		
Deck above m. l. w.	10 feet.				10 feet.	9 feet.		
Capacity per square foot	400 pounds.							
Lighted or unlighted	Lighted.				Lighted.	Lighted.		
Transit sheds on pier	None.				None.	None.		
Mechanical handling facilities	1 12-inch, 2 8-inch, and 2 6-inch pipe lines extend to storage tanks in rear.				1 20-ton steam locomotive crane, 55-foot reach; 2 trestles with dump cars.	1 3-inch and 1 4-inch pipe line extend to acid plant in rear.		
Railway connections	None.				Plant trackage connects with Pennsylvania-Reading Seashore Lines; 1 350-foot surface track on open wharf.	None.		
Steamship lines using terminal	do.				None.	Do.		
Water supply	Available to vessels at 25 cents per ton.				None for vessels.	None for vessels.		
Fire protection	Foamite system and city service.				Hydrants, pumps, hose, and borough service.	Hydrants, hose, and borough service.		
Electric current	None for vessels.				None for vessels.	None for vessels.		

Reference number on map	58			59		60
Name	Grasselli upper wharf			Miller Lumber Co. wharf		Gellenthin coal wharf
Location on water front	On left bank of Mantua Creek, 4,600 feet above mouth, Paulsboro, N. J.			On left bank of Mantua Creek, 250 feet below State highway bridge, Paulsboro, N. J.		On left bank of Mantua Creek, below State highway bridge, Paulsboro, N. J.
Owned by	E. I. du Pont de Nemours & Co., Inc.			E. G. Miller Lumber Co.		A. R. Gellenthin.
Operated by	Grasselli Department of E. I. du Pont de Nemours Co., Inc.			Not operated		Do.
Purpose for which used	Receipt of sulphur and other chemical materials.			Not in use		Receipt of coal.
Type of construction	Open pile pier, timber deck			Timber bulkhead, solid fill		Timber bulkhead, solid fill.
	Lower side	Upper side	Face or end	Lower side	Bulkhead wharf	Bulkhead wharf
Description:	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	
Dimensions	20	4+16	18	40	140+160+70	60+140 feet.
Depth of water, m. l. w			6	0	9–3	7–5 feet.
Berthing space available			165 with dolphins	0	140+160+70	60+140 feet.
Width of apron	Open wharf			Open wharf		15 feet.
Deck above m. l. w	10 feet			8 feet		8 feet.
Lighted or unlighted	Lighted			Unlighted		Unlighted.
Transit sheds of pier	None			None		None.
Mechanical handling facilities	1 3½-ton electric stiff-leg derrick, 68 foot-reach			None		1 electric mast and boom derrick, 38-foot reach, capacity 500 pounds.
Railway connections	None			do		None.
Steamship lines using terminal	do			do		Do.
Water supply	None for vessels			None for vessels		None for vessels.
Fire protection	Hydrants, hose, and borough service			Borough service		Borough service.
Electric current	None for vessels			None for vessels		None for vessels.

Piers, wharves, and docks (except drydocks)—Continued

Reference number on map / Name	61 Chew Service Co. wharf		62 Strathmann sand and gravel wharf	63 Petrol Corporation wharf
Location on water front	On left bank of Mantua Creek, 600 feet above State highway bridge, Paulsboro, N. J.		On left bank of Mantua Creek, 1,600 feet above State highway bridge, Paulsboro, N. J.	On right bank of Mantua Creek, below State highway bridge, Paulsboro, N. J.
Owned by	Stille C. Chew		Strathmann Sand & Gravel Corporation	Harvey Tripp.
Operated by	Chew Service Co., Inc.		do	Petrol Corporation.
Purpose for which used	Receipt of petroleum products		Shipment of sand and gravel	Receipt of petroleum products.
Type of construction	Timber crib, solid fill		Open pile wharf, timber deck, with timber mooring racks.	Timber bulkhead, solid fill.
	Upper side	Face or end	Shore wharf	Bulkhead wharf
Description:	*Feet*	*Feet*		
Dimensions	45	50	50 feet	60+60+120 feet.
Depth of water, m. l. w.	6–0	3	12 feet	5–1 feet.
Berthing space available	30	50	280 feet	60+60+120 feet.
Width of apron	Open wharf		5 feet	Open wharf.
Deck above m. l. w.	6 feet		15 feet	7 feet.
Lighted or unlighted	Unlighted		Lighted	Lighted.
Transit sheds on pier	None		None	None.
Mechanical handling facilities	1 2-inch and 1 3-inch pipe line extend to storage tanks in rear.		Belt conveyor and chute for loading barges	3 4-inch and 2 6-inch pipe lines extend to storage tanks in rear.
Railway connections	None		None	None.
Steamship lines using terminal	do		do	Do.
Water supply	None for vessels		None for vessels	None for vessels.
Fire protection	Borough service		Borough service	Borough service.
Electric current	None for vessels		None for vessels	None for vessels.

HOISTING FACILITIES

A number of the terminals at the ports on Delaware River below Philadelphia are equipped with facilities for heavy lifting. Most of this equipment is employed in handling material and products at industrial plants and is not available for public use, but two locomotive cranes of 15- and 40-ton capacities are available to the public at the South Chester terminal pier. The most powerful crane in this area is the hammerhead crane in the plant of the Sun Shipbuilding & Dry Dock Co. at Chester, Pa., which has a lifting capacity of 15 tons at its maximum radius of 110 feet. The pivot of this crane is 25 feet from the stringpiece of the pier permitting a reach of 85 feet over the side. The greatest lifting capacity of the machine is 120 tons, which may be taken at a radius of 60 feet, or 35 feet over the side. There are two revolving gantry cranes at the wharf of the Baldwin Locomotive Works at Eddystone, Pa., one of which has a capacity of 6 tons at the maximum reach of 89 feet and a capacity of 60 tons at 69 feet radius. The other crane will lift 50 tons at a radius of 54 feet. Both of these cranes are pivoted at a distance of about 35 feet from the stringpiece of the wharf.

The following table shows the details of hoisting facilities of over 5 tons capacity at the ports below Philadelphia, Pa.:

Hoisting facilities ashore

Reference No. on Map	Pier or wharf on which located: (a) Name (b) Operator and address	Cranes, derricks, etc.: Location	Available to public	Number and kind	Power used	Lifting capacity: Tons	Lifting capacity: Reach (feet)	Berthing space available: Length (feet)	Berthing space available: Depth m.l.w.	Railroad connection	Charge for use (per hour)	Remarks
5	(a) Deepwater generating station wharf.	Below Salem Canal, Deepwater Point, N. J.	No	1 tractor crane	Gasoline	[1] 25	45	500	26	Pennsylvania R. R.		
	(b) Deepwater Operating Co., Deepwater Point, N. J.			1 locomotive crane	Steam	22	19					Capacities shown are with the use of outriggers.
						3½	70					
6	(a) DuPont main wharf	Above Salem Canal, Deepwater Point, N. J.	No	3 locomotive cranes	do	[1] 15	50	600	30	Pennsylvania R. R.; Reading Co.		
	(b) E. I. duPont de Nemours & Co., Inc., Deepwater Point, N. J.											
15	(a) General Chemical Co. pier	1,800 feet above mouth of Naamans Creek, Claymont, Del.	No	2 traveling revolving cranes on trestle.	Electric	[1] 15	48	821+698	26			
	(b) General Chemical Co., Claymont, Del.											
22	(a) South Chester Terminal pier.	Near foot of Thurlow St., Chester, Pa.	Yes	1 locomotive crane	Gasoline	15	12	370+390	34	Pennsylvania R. R.; Reading Co.	$3.50	Rates include operator.
	(b) South Chester Terminal & Warehousing Co., Front and Thurlow Sts., Chester, Pa.						40					
				do	Steam	40	12				5.00	
							60					
23	(a) Delaware River Steel Co. pier.	Foot of Wilson St., Chester, Pa.	No	1 traveling straight-line gantry crane.	Electric	12½	52	420+225	12	Pennsylvania R. R.; Reading Co.		Plant is not in operation at the present time.
	(b) Delaware River Steel Co., Chester, Pa.			3 locomotive cranes	Steam	15	15					
							40					
24	(a) Philadelphia Electric Co. wharf.	Foot of Ward St., Chester, Pa.	No	1 locomotive crane	do	18	15	364+575+400	18	do		
	(b) Philadelphia Electric Co., 1000 Chestnut St., Philadelphia, Pa.			2 locomotive cranes	do	4	52					
						28	15					
						4½	60					
26	(a) Philadelphia Electric Co. bulkhead.	Between foot of Central Ave. and Norris St., Chester, Pa.	No	1 locomotive crane	do	14½	17	622	12	do		
						3¼	50					
	(b) Philadelphia Electric Co., 1000 Chestnut St., Philadelphia, Pa.			1 tractor crane	Gasoline	[1] 10	40					

[1] Maximum.

27	(*a*) American Dyewood Co. wharf (*b*) American Dyewood Co., Delaware Ave. and Lamokin St., Chester, Pa.	Between foot of Norris and Lamokin Sts., Chester, Pa.	No.	do	do	8 1¾	11 35	200	15			
28	(*a*) Philadelphia Quartz Co. wharf. (*b*) Philadelphia Quartz Co., Chester, Pa.	Between foot of Lamokin and Pennell Sts., Chester, Pa.	No.	1 locomotive crane	Steam	20	12 50	310	6	Pennsylvania R.R.; Reading Co.		
29	(*a*) Ford Motor Co. pier (*b*) Ford Motor Co., Chester, Pa.	Foot of Lloyd St., Chester, Pa.	No.	2 locomotive cranes with 38-foot booms. 2 locomotive cranes with 55-foot booms. 2 locomotive cranes with outriggers.	do	44½ 7½ 20 4¼ 37 8½ 4½	12 38 18 55 12 38 55	500+500	22–23	do		Both cranes may be fitted with either 38-foot or 55-foot booms.
31	(*a*) Chester Materials Co. wharf (*b*) Chester Materials Co., Chester, Pa.	Foot Franklin St., Chester, Pa.	No.	1 locomotive crane 1 tractor crane	Steam Gasoline	25 4 15 2	12 50 12 50	250	12	do		
35	(*a*) Chester Shipping Co. wharf (*b*) Ericsson Line, Inc., Chester, Pa.	Below foot of Market St., Chester, Pa.	No.	1 revolving derrick	Hand	10	20	248 285	8 11			
37	(*a*) Scott Paper Co. bulkhead (*b*) Scott Paper Co., Chester, Pa.	Above foot of Market St., Chester, Pa.	No.	1 stiff-leg derrick do	Electric do	2 5	30 80	280	10			Maximum lifting capacities not known. Capacities shown are at maximum reaches.
40	(*a*) Pier No. 4 (*b*) Sun Shipbuilding & Dry Dock Co., Chester, Pa.	Foot of Morton Ave., Chester, Pa.	No.	1 traveling revolving gantry crane.	do	17 5 1½	30 80 100	910 230	34–23 20	Pennsylvania R.R.; Reading Co.	(2)	Pivot of crane is 30 feet from stringpiece on upper side and 40 feet on lower side of pier.
41	(*a*) Pier No. 3-A (*b*) Sun Shipbuilding & Dry Dock Co., Chester, Pa.	do	No.	do	do	15 10 2	52 65 100	410 150	26 15	do	(2)	Pivot of crane is 20 feet from stringpiece on lower side and about 20 feet on face of wharf.
43	(*a*) Pier No. 2 (*b*) Sun Shipbuilding & Dry Dock Co., Chester, Pa.	do	No.	do	do	15 10 5 4	52 65 79 100	500 600	18 24	do	(2)	Pivot of crane is 30 feet from stringpieces of the upper and lower sides of pier.
44	(*a*) Pier No. 1 (*b*) Sun Shipbuilding & Dry Dock Co., Chester, Pa.	do	No.	1 revolving hammerhead crane.	do	120 80 30 15	60 76 97 110	600	24	do	(2)	Pivot of crane is 25 feet from stringpiece of lower side of pier.

[1] Maximum.
[2] By arrangement.

Hoisting facilities ashore—Continued

Reference No. on Map	Pier or wharf on which located: (*a*) Name (*b*) Operator and address	Cranes, derricks, etc.: Location	Available to public	Number and kind	Power used	Lifting capacity: Tons	Lifting capacity: Reach (feet)	Berthing space available: Length (feet)	Berthing space available: Depth m.l.w.	Railroad connection	Charge for use (per hour)	Remarks
47	(*a*) Baldwin Locomotive Works wharf. (*b*) Baldwin Locomotive Works, Eddystone, Pa.	Below mouth of Crum Creek, Eddystone, Pa.	No	1 traveling revolving gantry crane.	Electric	60	69	550	14	Baltimore & Ohio and Pennsylvania railroads. Reading Co.	----	Pivots of gantry cranes are about 35 feet from the stringpiece on the upper side of wharf.
						32	75					
						18	81					
						6	89					
				----do----	---do----	50	54					
							63					
				1 locomotive crane	Steam	[1] 25	50					
				2 locomotive cranes	---do----	[1] 20	45					
				1 locomotive crane	---do----	[1] 20	40					
49	(*a*) Yacht Repair & Storage Co. pier. (*b*) Yacht Repair & Storage Co., Essington, Pa.	Foot of Wanamaker Ave., Essington, Pa.	Yes	1 stiff-leg derrick	Gasoline	[1] 8	55	40	10	----------	[2]	
51	(*a*) DuPont acid wharf (*b*) E. I. duPont de Nemours & Co., Thompson Point, N. J.	Thompson Point, N. J.	No	1 locomotive crane	Steam	15	12	190+190	22	Pennsylvania Reading Seashore Lines.	----	
						----	40					
53	(*a*) Socony-Vacuum Oil Co. wharf. (*b*) Socony-Vacuum Oil Co., Paulsboro, N. J.	Bramell Point, N. J.	No	----do----	---do----	25	12½	2,500	33	----do----	----	
						----	50					
				1 tractor crane	Gasoline	17	12					
						----	40					
56	(*a*) I. P. Thomas & Son Co. wharf. (*b*) I. P. Thomas & Son Co., Paulsboro, N. J.	On left bank of Mantua Creek, 1,800 feet above mouth, Paulsboro, N. J.	No	1 locomotive crane	Steam	[1] 20	55	550	9–5	----do----	----	

[1] Maximum.
[2] By arrangement.

GRAIN ELEVATORS

There are no grain elevators at ports on the Delaware River below Philadelphia. The Pennsylvania Railroad and the Reading Co. each operate a grain elevator at Philadelphia, which are described in Port Series No. 4, the Ports of Philadelphia, Pa., Camden and Gloucester, N. J.

WRECKING AND SALVAGE FACILITIES

Wrecking and salvage facilities are available at Philadelphia and are discussed in Port Series No. 4, the Ports of Philadelphia, Pa., Camden and Gloucester, N. J.

RADIO AND WIRELESS

Radio communication facilities are available at Philadelphia and are discussed in Port Series No. 4, the Ports of Philadelphia, Pa., Camden and Gloucester, N. J.

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RAILROAD SERVICES AND RATES [1]

RAILROADS

The ports on Delaware River below Philadelphia having railroad communications are each served by one or more of the railroads described below:

Pennsylvania Railroad.—The Pennsylvania Railroad consists of a network of lines connecting most of the important points in trunk line and Central Freight Association territories. Main-line track is operated from New York City through Philadelphia, Pa., Trenton, N. J., Wilmington, Del., and Baltimore, Md., to Washington, D. C., and from New York City through Trenton, N. J., Philadelphia, and Harrisburg, Pa. to Pittsburgh, Pa. From Pittsburgh two main lines are operated to the West, one via Fort Wayne, Ind. to Chicago, Ill., and the other through Indianapolis, Ind. to St. Louis, Mo. Its lines extend to all the principal Great Lakes ports, to Cincinnati, Ohio, and Louisville, Ky. on the Ohio River, and to Cape Charles on Chesapeake Bay, from which point car ferries are operated to its water-front facilities at Norfolk, Va. A total of about 10,000 miles of track is operated.

Reading Railway System.—The Reading Railway System serves most of the important points in the territory between the Delaware and the Susquehanna Rivers. It operates generally westward from Philadelphia, Pa. to Scranton, Wilkes-Barre, Williamsport, Harrisburg, and Reading, Pa., as well as to most of the important intermediate points. In conjunction with the Pennsylvania Railroad, so-called Seashore Lines are operated from Philadelphia to the summer resorts on the New Jersey coast. A total of about 1,500 miles of track is operated.

Baltimore & Ohio Railroad.—The Baltimore & Ohio Railroad operates from New York through Philadelphia, Pa., Baltimore, Md., and Washington, D. C. to Cumberland, Md., from which point it operates two main lines to the West, one via Youngstown, Ohio, to Chicago, Ill., and the other via Cincinnati, Ohio, to St. Louis, Mo. Its lines extend to the principal Great Lakes ports, to Louisville, Ky. and other Ohio River crossings, and to most of the important points in trunk line and Central Freight Association territories. A total of about 6,500 miles of track is operated.

[1] The terminal charges and rates shown in this chapter do not include the increases authorized in Ex Parte, I. C. C.'s 115 and 123.

CAR DEMURRAGE

The three railroads described above are parties to and are governed by the provisions and charges published for their account by Agent B. T. Jones in his tariff 4–R, I. C. C. 3072. Under this authority 48 hours' free time is usually allowed for loading or unloading all commodities (except as provided), computed from the first 7 a. m. after placement, or first 7 a. m. after notice of arrival is sent or given to consignee. At the expiration of free time a charge of $2 per car per day or fraction thereof applies for each of the first 4 days, and $5 per car per day for each succeeding day until the car is released.

DIVERSION AND RECONSIGNMENT

The railroads permit the diversion and reconsignment of carload traffic under numerous published rules and conditions, provided the traffic has not broken bulk. Generally speaking, no charge is made for a single diversion or reconsignment if order is received at initial billing point before car leaves the yard and no extra movement of car is required; nor where a car placed for delivery at destination and an order for delivery of contents thereof to other than the billed consignee is or has been accepted by the agent at destination and no additional movement of car is required; nor where a change in route is made necessary by reason of an embargo placed against the billed destination or route thereto subsequent to acceptance of shipment by the carrier at the point of origin. Some of the principal charges are as follows:

	Per car
Change in name of consignee (no other change)	$1.35
Diversion or reconsignment in transit	2.70
Stopping in transit	2.70
Diversion or reconsignment to points outside switching limits, on orders given before arrival	2.70
Diversion or reconsignment to points outside switching limits, after arrival and before placement	6.30
Diversion or reconsignment to points inside switching limits, before placement on orders given within 24 hours—	
After arrival	2.70
And after 24 hours	6.30

Other charges and complete information are contained in Pennsylvania Railroad tariff 223–G, I. C. C. 1419, and Reading Co. I. C. C. 1432.

COMMERCE

The water-borne commerce at the ports on the Delaware River between New Castle, Del. and Philadelphia, Pa. averaged 12,645,587 short tons annually during the 6-year period 1932–37. Statistics for the years prior to 1932 are not available. The above tonnage represents the total water-borne commerce at Deepwater Point and Pennsgrove, N. J., Edgemoor, and Claymont, Del., Marcus Hook, Chester, Eddystone, and Essington, Pa., Thompson Point, and Paulsboro, N. J. The commerce at the latter place was handled at terminals on the Delaware River and also on Mantua Creek. The commerce at New Castle, Del. and Pennsville, N. J. is negligible and detailed statistics are not available.

The volume of commerce handled in the calendar year 1932 was 9,549,687 tons as compared with 15,739,919 tons in 1937, an increase of 64.8 percent during the period. This upward trend was continuous throughout the 6 years. The greatest increase among the several classes of traffic was 189.0 percent manifested in imports, and the least 0.4 percent in exports. Increases in other classes of traffic were coastwise receipts, 65.0 percent; coastwise shipments, 44.6 percent; internal receipts, 57.4 percent; internal shipments, 114.9 percent, and intraport and local traffic, 52.4 percent.

The average annual commerce was largely in coastwise traffic which accounted for 77.4 percent of the whole. Foreign traffic was 7.2 percent; internal traffic, 6.4 percent; and intraport and local traffic was 9.0 percent.

The following tabulation shows the volume of commerce for each of the 6 years at the several localities.

Water-borne commerce of localities on Delaware River between New Castle, Del., and Philadelphia, Pa., 1932–37

[Quantities expressed in short tons]

Delaware River at—	Year	Foreign			Domestic						Grand total
		Imports	Exports	Total	Coastwise		Internal		Local and intraport	Total	
					Receipts	Shipments	Receipts	Shipments			
Deepwater Point and Pennsgrove, N. J.	1932	81,516	1,732	83,248	460,060	----------	650	5,450	7,900	474,060	557,308
	1933	130,183	2,180	132,363	512,942	1,800	2,483	5,022	29,188	551,435	683,798
	1934	197,035	1,671	198,706	540,905	----------	150	260	25,762	567,077	765,783
	1935	159,256	1,151	160,407	527,241	896	3,708	----------	7,205	539,050	699,457
	1936	189,027	1,383	190,410	558,080	----------	8,140	200	15,250	581,670	772,080
	1937	228,445	1,241	229,686	584,734	----------	12,613	1,749	24,457	623,553	853,239
Marcus Hook, Pa., and Claymont and Edgemoor, Del.	1932	172,926	140,060	312,986	4,824,930	1,272,931	9,174	341,909	461,348	6,910,292	7,223,278
	1933	239,293	247,075	486,368	5,637,716	1,596,147	14,211	368,566	591,435	8,208,075	8,694,443
	1934	208,685	103,676	312,361	5,842,163	1,796,878	13,520	446,870	527,149	8,626,580	8,938,941
	1935	269,518	102,840	372,358	6,338,968	1,911,354	23,088	427,610	621,747	9,322,767	9,695,125
	1936	312,805	26,951	339,756	6,889,500	2,083,156	22,203	492,818	651,890	10,139,567	10,479,323
	1937	423,505	35,680	459,185	7,620,340	1,735,420	42,125	591,906	873,509	10,863,300	11,322,485
Chester, Eddystone, and Essington, Pa.	1932	26,643	30,325	56,968	18,608	29,600	28,878	1,801	341,033	419,920	476,888
	1933	40,142	78,381	118,523	58,265	53,537	28,686	2,086	302,990	445,564	564,087
	1934	57,089	101,006	158,095	110,006	70,811	37,342	1,787	196,426	416,372	574,467
	1935	48,786	110,946	159,732	97,459	77,398	4,594	890	222,157	402,498	562,230
	1936	90,581	93,001	183,582	135,271	79,880	47,320	5,043	252,992	520,506	704,088
	1937	93,334	132,409	225,743	133,081	96,278	47,209	1,305	310,160	588,033	813,776
Thompson Point, N. J.	1932	----------	----------	----------	24,551	----------	3,361	20	13,866	41,798	41,798
	1933	----------	357	357	2,210	427	3,970	3,250	19,479	29,336	29,693
	1934	----------	1,026	1,026	30,666	----------	2,399	----------	24,421	57,486	58,512
	1935	----------	1,637	1,637	32,294	----------	6,028	9,781	34,839	82,942	84,579
	1936	----------	1,632	1,632	33,942	----------	5,779	----------	26,649	66,370	68,002
	1937	----------	1,939	1,939	23,847	818	3,990	1,735	25,308	55,698	57,637
Paulsboro, N. J.	1932	17,067	153,449	170,516	669,725	60,885	75,527	119,272	154,490	1,079,899	1,250,415
	1933	13,395	171,703	185,098	677,858	103,698	90,269	132,101	192,637	1,196,563	1,381,661
	1934	65,260	161,760	227,020	976,525	62,639	63,723	130,419	191,948	1,425,254	1,652,274
	1935	56,123	156,050	212,173	1,042,242	114,344	54,583	235,496	234,941	1,681,606	1,893,779
	1936	39,462	148,815	188,277	1,327,744	146,858	67,732	337,735	213,251	2,093,320	2,281,597
	1937	116,285	155,756	272,041	1,534,487	139,360	79,184	409,863	257,847	2,420,741	2,692,782

Delaware River between New Castle, Del., and Philadelphia, Pa.	1932	298,152	325,566	623,718	5,997,874	1,363,416	117,590	468,452	978,637	8,925,969	9,549,687
	1933	423,013	499,696	922,709	6,888,991	1,755,609	139,619	511,025	1,135,729	10,430,973	11,353,682
	1934	528,069	369,139	897,208	7,500,265	1,930,328	117,134	579,336	965,706	11,092,769	11,989,977
	1935	533,683	372,624	906,307	8,038,204	2,103,992	92,001	673,777	1,120,889	12,028,863	12,935,170
	1936	631,875	271,782	903,657	8,944,537	2,309,894	151,174	835,796	1,160,032	13,401,433	14,305,090
	1937	861,569	327,025	1,188,594	9,893,489	1,971,876	185,121	1,006,558	1,491,281	14,551,325	15,739,919
Average 1932-37		546,060	360,972	907,032	7,877,727	1,905,852	133,773	679,157	1,142,046	11,738,555	12,645,587

GENERAL

The ports on Delaware River below Philadelphia, Pa., as contemplated in this report, are those situated on the 26-mile river section extending from New Castle, Del., to Philadelphia, Pa., and include New Castle, Del.; Pennsville, Deepwater Point, and Pennsgrove, N. J.; Edgemoor and Claymont, Del.; Marcus Hook and Chester, Pa.; Bridgeport, N. J.; Eddystone and Essington, Pa.; Thompson Point and Paulsboro, N. J.

The 35-foot channel linking Philadelphia with the sea extends through this river area and practically all of the commerce of the river, including that of Wilmington, Del., excepting purely local traffic, passes over it. A recommendation to increase the depth of this channel to 40 feet at mean low water from deep water in Delaware Bay to the navy yard and thence 37 feet deep to the Philadelphia-Camden Bridge has been approved by the Federal Government. The width of the river section under discussion averages slightly more than a mile, except at Paulsboro, where it narrows to slightly more than half a mile. There are no bridge crossings, but vehicular and passenger ferries ply between New Castle, Del., and Pennsville, N. J.; Wilmington, Del., and Pennsgrove, N. J.; Chester, Pa., and Bridgeport, N. J. Four prescribed anchorage grounds having a combined area of 936 acres are situated in this section of the river.

The ports on the Delaware River embraced in this report are from 66 to 92 miles distant from the Atlantic Ocean, and are thus accessible to foreign and coastwise commerce. They are also well situated for an extensive internal traffic through the Chesapeake and Delaware Canal, which connects the Delaware River with Chesapeake Bay and its tributaries. The eastern entrance to the canal, which is about 19 miles long and has a project depth of 27 feet, is 7 miles below New Castle.

The Delaware River passes through a highly industrialized section of the country and this is particularly true of that section lying below Philadelphia. Here are found extensive chemical works, oil refineries, foundries, a large shipbuilding plant, and other manufacturing industries. Practically all of the piers and wharves at localities on this section of the river, with the exception of those at New Castle, Pennsville, Pennsgrove, and Bridgeport, are operated as part of industrial plants where raw materials are received and, in some cases, where finished products are shipped. The only terminal for

the handling of general cargo in foreign and coastwise trade is at Chester.

Facilities for fuel oil bunkering and marine repairs to ships are available. Bunker fuel oil may be taken at Marcus Hook, Pa., and Paulsboro, N. J., as well as by barge alongside at any berth or in the stream. Water for boiler use may be taken anywhere directly from the river. Ship repairs of any magnitude may be undertaken at the Sun Shipbuilding & Dry Dock Co. at Chester, Pa., where two 10,000-ton drydocks and complete shop facilities are available.

The total water-borne commerce at the ports on the Delaware River below Philadelphia during 6 years of record, has increased steadily from 9,549,687 tons in 1932 to 15,739,919 tons in 1937, a gain of 64.8 percent during the period. The greatest gain was manifested in the imports which increased 189.0 percent in volume. Considering the average annual volume of commerce during the 6-year period, it is found that 77.4 percent was in the coastwise trade, while the volume of foreign trade amounted to 7.2 percent; internal traffic 6.4 percent, and intraport and local traffic 9.0 percent. It is interesting to note that during the calendar year 1937, 27 percent of the internal traffic moved through the Chesapeake and Delaware Canal.

The ports on the western, or Delaware-Pennsylvania side of the river, are served by the Pennsylvania Railroad and, in some instances, by the Reading Railway System, as well as by the Baltimore & Ohio Railroad. Ports on the eastern, or New Jersey side of the river, are served by the Pennsylvania Railroad or the Pennsylvania-Reading Seashore Lines.

NEW CASTLE, DEL.

General description.—The city of New Castle is situated on the west bank of Delaware River about 5 miles below Wilmington, Del., 34 miles below Chestnut Street, Philadelphia, and about 66 miles from the open sea. It is connected with Pennsville, N. J., on the opposite river shore by a vehicular and passenger ferry. The nearest anchorage ground is the Deepwater Point anchorage.

Piers, wharves, and docks.—There are two terminals on the city water front, one being a public wharf and the other a ferry terminal. The public wharf, owned by the city of New Castle, is situated at the foot of Delaware Street. It is constructed of concrete retaining walls, with 160 feet of berthing space on the lower side, 260 feet on the upper side, and 110 feet at the end. The depth alongside is 7 feet at mean low water. No charge is made for occasional use of the wharf. The wharf is protected from ice floes by a group of concrete ice piers. The terminal of the Delaware-New Jersey Ferry Co., operator of the vehicular and passenger ferry to Pennsville, N. J., is situated at the foot of Chestnut Street. It comprises two boat slips. The terminals at New Castle are shown under reference numbers 1 and 2 on the port facilities map and in the descriptive table on page 14.

Airports and air lines.—The Ballanca Field-Wilmington Airport is a commercial field situated one mile west of New Castle and 5½ miles south-southwest of Wilmington, Del. Facilities are available for servicing aircraft during day or night. Biggs Field is an auxiliary air field situated 1 mile north of the center of the city. Aviation fuel is available day and night. The airports at New Castle are not designated in published schedules of the principal transport air lines.

Railroads.—New Castle is served by the Pennsylvania Railroad, a general description of which is shown on page 41.

Facilities for interchange between rail and water.—There is no direct interchange. A spur track of the Pennsylvania Railroad extends to within 200 feet of the public wharf.

Switching.—The Pennsylvania Railroad makes a charge of $6.75 per car on road-haul traffic and a charge of 50 cents per ton, as rated, minimum charge $9.50 per car, on non-road-haul traffic for movement of all freight from industrial, private, or public sidings to industrial, private, or public sidings. These charges do not apply on traffic to or from water carriers. Intraplant switching is assessed $2.70 per

car on road-haul traffic and $3.15 per car on non-road-haul traffic. Tariff Authority, Pennsylvania Railroad 1589, I. C. C. 691.

Car demurrage.—The general provisions regarding car demurrage are shown on page 42.

Diversion and reconsignment.—The general provisions regarding diversion and reconsignment are shown on page 42.

Miscellaneous charges.—The miscellaneous charges shown for Marcus Hook, Pa., on page 57, also apply at New Castle.

Commerce.—Statistics of the water-borne commerce at New Castle are not available. It is believed to be negligible.

PENNSVILLE, N. J.

General description.—Pennsville is situated on the east bank of Delaware River opposite New Castle, Del., and is connected with that city by a vehicular and passenger ferry. The nearest anchorage ground is the Deepwater Point anchorage.

Piers, wharves, and docks.—There are two terminals at this place, one being a ferry terminal comprising two boat slips, operated by the Delaware-New Jersey Ferry Co., and the other is an open pile pier, operated by the Wilson Line as a steamboat passenger landing. The pier is about 500 feet long, but shoal water permits berthing only at the outer end. The terminals are shown under reference numbers 3 and 4 on the port facilities map and in the descriptive table on pages 14 and 15.

Commerce.—Statistics of the water-borne commerce at Pennsville, N. J., are not available. It is believed to be negligible.

DEEPWATER POINT, N. J.

General description.—Deepwater Point is situated on the east bank of Delaware River about 30 miles below Chestnut Street, Philadelphia, about 70 miles from the open sea, and nearly opposite the mouth of Christiana River. There are two industries located here, the chemical plant of the E. I. du Pont de Nemours & Co., and the electric generating plant of the Deepwater Operating Co. They are separated by the Salem Canal, navigation upon which is obstructed by a dam a short distance above its mouth. The Deepwater Point anchorage is off this place. An elevated electric power line extends to the end of a pier just above the du Pont piers, whence it is carried down, crossing on the river bottom to a pier at Pigeon Point directly opposite on the west bank, where it is again elevated to steel towers.

Piers, wharves, and docks.—There are four wharves at this place. One, operated by the Deepwater Operating Co. for the receipt of

fuel coal, is situated 1,700 feet below the mouth of Salem Canal. It is an open pile wharf 500 feet long with 26 feet of water alongside, and is equipped with coal handling facilities. The three other wharves are operated by E. I. du Pont de Nemours & Co. They are situated in a group having a common approach and include one wharf for the handling of raw materials and finished chemical products, one car float bridge, and one wharf for handling general plant freight, the latter also being a landing for a steamboat which transports employees to and from the opposite side of the river.

Commerce.—The statistics of water-borne commerce at Deepwater Point, N. J., include the tonnage handled at Pennsgrove, N. J., but since this latter tonnage consists only of package freight handled at the Wilson Line pier, it comprises an inconsiderable volume of the whole. Therefore the tonnage figures compiled under the caption "Pennsgrove, and Deepwater Point, N. J.," which are shown in the 6-year commerce table on page 44, may be taken to represent the commerce at Deepwater Point. The commodities handled consist mainly of coal, molasses, minerals, and chemicals. The total tonnage handled in the calendar year 1937 was 853,239 tons, which was more than that of any other year during the 6-year period 1932–37. The annual volume of commerce has shown an upward trend during the 6-year period, increasing each year except one. The total increase for the 6-year period was 53 percent. The commerce during the calendar year 1937 was mainly in the coastwise trade, the tonnage in this class of traffic being 68.5 percent of the total. Traffic in foreign trade represented 26.9 percent, internal traffic 1.7 percent, while intraport and local traffic was 2.9 percent.

Water-borne commerce of Delaware River, at Pennsgrove and Deepwater Point, N. J., calendar year 1937

[Quantities expressed in short tons]

IMPORTS	
Vegetable food products: Molasses	226,320
Nonmetallic minerals: Fluorspar	2,125
Total, imports	228,445
EXPORTS	
Nonmetallic minerals: Coal	472
Chemicals:	
Coal-tar products	700
Other chemicals	69
Total, exports	1,241

COASTWISE RECEIPTS	
Nonmetallic minerals:	
Coal	520,484
Fuel and gas oil	34,495
Sulphur, crude	26,768
Ores, metals and manufactures of:	
Iron ore	1,488
Lead, pigs, bars, etc	1,499
Total, coastwise receipts	584,734

Water-borne commerce of Delaware River, at Pennsgrove and Deepwater Point, N. J., calendar year 1937—Continued

[Quantities expressed in short tons]

INTERNAL RECEIPTS	
Chemicals:	
Acid, sulphuric	8,021
Bromide	4,271
Other chemicals	321
Total internal receipts	12,613
INTERNAL SHIPMENTS	
Chemicals: Alcohol	1,749
Total, internal shipments	1,749
INTRAPORT RECEIPTS	
Nonmetallic minerals: Petroleum products	641
Total, intraport receipts	641
INTRAPORT SHIPMENTS	
Chemicals: Acid, sulphuric	304
Total, intraport shipments	304
LOCAL	
Nonmetallic minerals:	
Fluorspar	340
Fuel and gas oil	22,357
Unclassified: General merchandise	815
Total, local	23,512

SUMMARY

Foreign:		Intraport:	
Imports	228,445	Receipts	641
Exports	1,241	Shipments	304
Total, foreign	229,686	Total, intraport	945
Coastwise: Receipts	584,734	Local	23,512
Internal:		Grand total, all traffic	853,239
Receipts	12,613		
Shipments	1,749		
Total, internal	14,362		

PENNSGROVE, N. J.

General description.—Pennsgrove is on the east bank of Delaware River, about 27 miles below Chestnut Street, Philadelphia. It is an intermediate stopping point for the Wilson Line freight and passenger service between Philadelphia and Wilmington. A vehicular and passenger ferry connects with Wilmington. The nearest anchorage ground is at Deepwater Point.

Piers, wharves, and docks.—There are two terminals at Pennsgrove, one being a landing of the Delaware-New Jersey Ferry Co., and the other a terminal of the Wilson Line. The terminals are shown under reference numbers 9 and 10 on the map and in the descriptive table on pages 16 and 17.

Railroads.—The port is served by the Pennsylvania-Reading Seashore Lines, a general description of which is shown on page 41.

Car demurrage.—The general provisions regarding car demurrage are shown on page 42.

Diversion and reconsignment.—The general provisions regarding diversion and reconsignment are shown on page 42.

Commerce.—The water-borne commerce at Pennsgrove consists of package freight loaded and discharged by the Wilson Line at its pier, which is the only terminal at this place other than the ferry landing. Statistics regarding the volume of package freight handled are not available.

EDGEMOOR, DEL.

General description.—The village of Edgemoor is situated on the west bank of Delaware River about 27 miles below Chestnut Street, Philadelphia. It is the site of a United States Lighthouse Service depot and a chemical plant of E. I. duPont de Nemours & Co. The nearest anchorage ground is at Deepwater Point.

Piers, wharves, and docks.—The terminals at Edgemoor comprise two piers operated in connection with a depot of the Lighthouse Service of the United States Department of Commerce, and one recently constructed wharf of E. I. duPont de Nemours & Co. for the receipt of acid and fuel oil. These wharves are shown under reference numbers 11 to 13 on the map and in the descriptive table on pages 17 and 18.

Railroads.—Edgemoor is served by the Pennsylvania Railroad, a general description of which is given on page 41.

Switching.—The Pennsylvania Railroad makes a charge of $6.75 per car on road-haul traffic and $8.10 per car on non-road-haul traffic for movement of all freight between industrial, private, and public sidings. For movement of all freight from private sidings at Edgemoor to the junction with the Reading Co. at Wilmington, the Pennsylvania Railroad makes a charge of $4.05 per car on road-haul traffic. For the movement of all freight from industrial, private, and public sidings to the junction with the Baltimore & Ohio Railroad at Wilmington, the Pennsylvania Railroad makes a charge of $6.30 per car on road-haul traffic. Tariff authority, Pennsylvania Railroad 1589, I. C. C. 691.

Commerce.—Separate statistics of the water-borne commerce at Edgemoor are not available since these data are included in a com-

pilation comprising the combined figures of the commerce at Edgemoor and Claymont, Del., and at Marcus Hook, Pa. These statistics are shown in relation to the port of Marcus Hook on page 44.

CLAYMONT, DEL.

General description.—Claymont is situated on the west bank of Delaware River immediately below the Pennsylvania State line, and about 23 miles below Chestnut Street, Philadelphia. The nearest anchorage ground is off Marcus Hook.

Piers, wharves, and docks.—There are two water-front terminals at Claymont, one being the pier operated by the Texas Co. for handling of petroleum and products and the other the pier of the General Chemical Co. used for the receipt and shipment of chemicals. These terminals are shown under reference numbers 14 and 15 on the map and in the detailed tables on page 18.

Railroads.—Claymont is served by the Pennsylvania Railroad, a general description of which is given on page 41.

Switching.—For movement of all freight from industrial, private, or public sidings to industrial, private or public sidings, a rate of $6.75 per car applies on road-haul traffic and a rate of $8.10 per car on non-road-haul traffic. Intraplant switching is assessed $2.70 per car on road-haul traffic and $3.15 per car on non-road-haul traffic. Tariff authority, Pennsylvania Railroad 1589, I. C. C. 691.

Commerce.—Separate statistics of water-borne commerce at Claymont are not available, since these data are included in a compilation comprising the combined figures of the commerce at Edgemoor and Claymont, Del., and at Marcus Hook, Pa. These statistics are shown in relation to the port of Marcus Hook on page 44.

MARCUS HOOK, PA.

General description.—Marcus Hook is situated on the west bank of Delaware River, about 20 miles below Chestnut Street, Philadelphia, and about 81 miles from the open sea. It is an important oil refining center and large quantities of crude oil are received and refined annually. A quarantine station of the United States Public Health Service is situated at the lower end of the water front. An anchorage ground is on the east side of the channel opposite this place.

Oil bunkering.—There are three facilities for supplying bunker fuel oil to vessels at Marcus Hook. These are the Pure Oil Co., Sinclair Refining Co., and the Sun Oil Co. The Sinclair Refining Co. operates a tank barge for bunkering vessels alongside in addition to the bunkering facilities at the wharf. Fuel oil is delivered into bunkers at rates of from 1,500 to 3,000 barrels an hour. Detailed information regarding the oil bunkering facilities is shown in the following table:

Fuel-oil bunkering facilities

Owner and operator Address	Pure Oil Co. Marcus Hook, Pa.	Sinclair Refining Co. Marcus Hook, Pa.	Sun Oil Co. Marcus Hook, Pa.
Storage facilities—Tanks:			
Location	Marcus Hook, Pa	Marcus Hook, Pa	Marcus Hook, Pa.
Number of tanks	9	114	50.
Type of construction	Steel	Steel	Steel.
Total storage capacity (42-gallon barrels).	474,000	2,383,840	3,368,000.
Intake pipe lines (number and size in inches).	1 4-inch, 5 6-inch, 2 8-inch, and 2 10-inch	3 4-inch, 7 6-inch, 5 8-inch, 1 10-inch, and 2 12-inch.	4-inch to 12-inch.
Supply:			
Source of supply	Texas	Texas	Gulf Coast.
How received	Tanker	Tanker	Tanker.
Grades kept in stock	Bunker C	Bunker C | Bunker A	Standard grades, Nos. 1 to 5.
Maximum supply (barrels)	200,000	170,000 | 10,000	400,000.
Normal supply (barrels)	125,000	100,000 | 10,000	
Bunkering facilities:			
Name and type	Pure Oil Co. pier	Sinclair Refining Co. wharf	Sun Oil Co. pier.
Reference number on map	17	20	13.
Location on water front	Above foot of Blue Ball Ave	400 feet above foot of Church St	Foot of Hewes St.
Type of construction	Open pile pier, timber deck	Concrete retaining walls, solid with concrete deck; part is structural steel on steel piling with concrete deck; open pile approach.	Concrete retaining walls, solid fill.
Actual berthing space for bunkering (feet).	162	1,000	520 and 600.
Depth of water, m. l. w. (feet)	23	35–32	30.
Bunkering capacity (barrels per hour).	1,500	2,500	2,000–3,000.
Discharge pipe lines (number and size in inches).	1 8-inch	1 8-inch	2 8-inch.
Barges (also see Floating equipment):			
Total number of barges		1	
Towed or self-propelled		Towed	
Total carrying capacity (barrels).		9,000	
Total bunkering capacity (barrels per hour).		1,500	
Method of delivery of oil to vessels.		Hose	
Special fire protection	Foamite extinguishers	Foamite extinguishers	Foamite extinguishers.
Remarks	A tank farm comprising 15 tanks having a total capacity of 825,000 barrels is situated 4½ miles from this refinery, connected by pipe line.		

Piers, wharves, and docks.—There are five piers at Marcus Hook, four of which are operated by oil companies and one by the United States Public Health Service in connection with the quarantine station located at this place. These piers are shown under reference Nos. 16 to 20 on the map and in the detailed tables on pages 19 and 20.

Floating equipment.—The Sinclair Refining Co. operates the barge *U. P. 110* for the transportation of petroleum products and for the delivery of bunker fuel oil to vessels. The barge, which is non-self-propelled, is 182.5 feet long and has a beam of 30.2 feet and a draft of 12 feet when loaded and 4 feet when light. It has a cargo capacity of 9,000 barrels and is equipped to bunker at the rate of 1,500 barrels per hour. Steam for the pump is supplied by the attendant towboat.

Railroads.—Marcus Hook is served by the Pennsylvania Railroad and the Reading Co. A general description of these railroads is given on page 41.

Switching.—The following charges of the Pennsylvania Railroad are, for the character of the service performed, representative charges at this port. For movement of all traffic from sidings on the Pennsylvania to the junction of the Reading Co. at Chester, a charge of $4.05 per car applies when destined to points on the Reading Co. and connecting lines beyond Chester and Marcus Hook. On all freight originating in Chester for movement from private sidings on the Pennsylvania Railroad to private sidings on the Reading Co. at Chester and Marcus Hook, a charge of $13.50 per car applies on road-haul traffic and a charge of $16 per car on non-road-haul traffic. Intraplant switching is assessed $2.70 per car on road-haul traffic and $3.15 per car on non-road-haul traffic. For movement of all freight between industrial, private, and public sidings a charge of $6.75 per car applies on road-haul traffic and a charge of $8.10 on non-road-haul traffic. The foregoing charges do not apply on traffic to or from water lines. Tariff authority, Pennsylvania Railroad 1589, I. C. C. 691. For complete information reference should be made to this tariff and to Reading Co. tariff I. C. C. 1330.

Car demurrage.—The general provisions regarding car demurrage are shown on page 42.

Diversion and reconsignment.—The general provisions regarding diversion and reconsignment are shown on page 42.

Transit privileges.—There are at the present time in excess of 500 commodities upon which transit privileges of various kinds are accorded by the railroads on general carload traffic. Not many of the commodities are such as move in the water-borne commerce of Marcus Hook. The following, applying specifically at Marcus Hook, Chester, and Trenton, will indicate in a limited way the value of the privileges to the shipper. The Pennsylvania Railroad provides that various iron and steel articles, carloads, when originating at and des-

tined to defined territories, may be stopped in transit at Marcus Hook, Chester, and Trenton for fabrication on the basis of specific through rates plus a transit charge of 3½ cents per 100 pounds. The time limit is 12 months from the date the car is received at the transit point. Tariff authority, Pennsylvania Railroad 1086–A, I. C. C. 1231.

Miscellaneous charges.—For special freight-train service the Pennsylvania Railroad makes a charge of $2.25 per train per mile, with a minimum charge of $90. For weighing on private scales located at the industry, in-bound and out-bound, the charge is either 63 cents or $1.35 per car, depending upon whether the weighing is performed before or after placement. On other private scales the charge is $1.35, $3.15, or $6.30 per car, depending upon the distance of the scales from the shipper's plant. On railroad company scales the charge for weighing both in-bound and out-bound traffic is $1.35, $3.15, or $6.30 per car depending upon when weighed. For weighing enroute to destination the charge is $3.60 per car. Tariff authority, Pennsylvania Railroad 1233–C, I. C. C. 1824. The same charges are published by the Reading Co. in its tariff, I. C. C. 541.

Commerce.—Separate statistics of water-borne commerce at Marcus Hook are not available, since these data are included in a compilation comprising the combined figures of the commerce at Edgemoor and Claymont, Del., and Marcus Hook, Pa. The water-borne commerce of Marcus Hook, Pa., and vicinity amounted to 11,322,485 tons in the calendar year 1937 and marked an unbroken upward trend since 1932, the earliest statistical record available. This represented a total increase of 56.7 percent during the period. The coastwise trade claimed the greater part of the water-borne commerce of 1937, being 82.6 percent of the whole. The coastwise receipts, consisting very largely of petroleum and products, amounted to 7,620,340 tons, of which crude oil alone comprised 6,397,978 tons. The coastwise shipments amounting to 1,735,420 tons consisted almost entirely of petroleum products. The internal traffic represented 5.6 percent of the traffic at the locality, the receipts amounting to 42,125 tons, of which 25,568 tons were sulphuric acid, and the shipments to 591,906 tons, of which 548,072 tons were petroleum products. Foreign trade amounted to 459,185 tons or 4.1 percent and intraport and local traffic to 873,509 tons or 7.7 percent.

Water-borne commerce on Delaware River, at Marcus Hook, Pa., Claymont and Edgemoor, Del., calendar year 1937

[Quantities expressed in short tons]

IMPORTS	
Wood and paper: Cork	2, 154
Nonmetallic minerals:	
Fluorspar	4, 371
Petroleum products	180, 715
Pyrites ore	217, 253
Ores, metals, and manufactures of: Bauxite	18, 541
Chemicals: Potassium sulphate	471
Total, imports	423, 505
EXPORTS	
Nonmetallic minerals: Petroleum products	34, 826
Chemicals: Alum cake	854
Total, exports	35, 680
COASTWISE RECEIPTS	
Nonmetallic minerals:	
Petroleum products	7, 573, 565
Sulphur, crude	7, 082
Chemicals:	
Acid, sulphuric	11, 900
Phosphate rock	26, 649
Unclassified:	
Containers	939
General merchandise	205
Total, coastwise receipts	7, 620, 340
COASTWISE SHIPMENTS	
Nonmetallic minerals: Petroleum products	1, 728, 896
Chemicals:	
Acid, sulphuric	3, 793
Paints	139
Unclassified: General merchandise	2, 592
Total, coastwise shipments	1, 735, 420
INTERNAL RECEIPTS	
Nonmetallic minerals:	
Petroleum products	8, 352
Sand and gravel	500
Chemicals:	
Acid, sulphuric	25, 568
Nitrate of soda	7, 705
Total, internal receipts	42, 125
INTERNAL SHIPMENTS	
Nonmetallic minerals: Petroleum products	548, 072
Chemicals: Acid, sulphuric	43, 798
Unclassified: General merchandise	36
Total, internal shipments	591, 906
INTRAPORT RECEIPTS	
Nonmetallic minerals: Petroleum products	22, 984
Chemicals:	
Acid, sulphuric	4, 396
Creosote oil	1, 449
Total, intraport receipts	28, 829
INTRAPORT SHIPMENTS	
Nonmetallic minerals: Petroleum products	251, 176
Chemicals: Acid, sulphuric	15, 452
Total, intraport shipments	266, 628
LOCAL	
Wood and paper: Lumber	680
Nonmetallic minerals:	
Coal	109
Petroleum products	482, 255
Chemicals: Acid, sulphuric	95, 008
Total, local	578, 052

Water-borne commerce on Delaware River, at Marcus Hook, Pa., Claymont and Edgemoor, Del., calendar year 1937

[Quantities expressed in short tons]

SUMMARY

Foreign:		Internal:	
Imports	423, 505	Receipts	42, 125
Exports	35, 680	Shipments	591, 906
Total, foreign	459, 185	Total, internal	634, 031
Coastwise:		Intraport:	
Receipts	7, 620, 340	Receipts	28, 829
Shipments	1, 735, 420	Shipments	266, 628
Total, coastwise	9, 355, 760	Total, intraport	295, 457
		Local	578, 052
		Grand total, all traffic	11, 322, 485

CHESTER, PA.

General description.—Chester is situated on the west bank of Delaware River, about 17 miles below Chestnut Street, Philadelphia. It is an important manufacturing center and many of its industries use the wharf facilities on the 4-mile water front of the port. One of the largest shipyards and ship-repair plants on the Atlantic seaboard, the Sun Shipbuilding & Dry Dock Co., is located here. The nearest anchorage ground is off Marcus Hook.

Piers, wharves, and docks.—There are 24 wharves and terminals along the water front of Chester, providing a total of 14,409 linear feet of berthing space, with depths of water alongside up to 34 feet at mean low water. The terminals include two operated by Delaware River steamboat lines, one operated by a terminal company for the handling of general cargo in coastwise and foreign trade, one landing of a vehicular and passenger ferry plying between this place and Bridgeport, N. J., on the opposite side of the river, while the remainder are used by the industries occupying them. The pier of the South Chester Terminal & Warehousing Co. is situated near the lower limits of the city and is a terminal for foreign and coastwise trade. It is used regularly at the present time by the steamship lines of Moore & McCormack Co. and by the Quaker Line. The pier affords 370 feet of berthing space on the lower side, 390 feet on the upper, and has depths of 34 to 17 feet of water alongside at mean low water. Two locomotive cranes and lifting magnets are available for handling cargo, and terminal trackage on the pier connects with the Pennsylvania Railroad and the Reading Co. lines. Covered and open storage space is available in the rear of the pier. The pier is connected by pipe line with the storage tanks of the Petrol Corpora-

tion immediately below the terminal to enable deep-draft tankers to discharge petroleum products. The depth of water at the wharf of the Petrol Corporation is limited to 12 feet at mean low water.

The terminals are shown under reference Nos. 21 to 44 on the map, and in the descriptive table on pages 20 to 28.

Storage warehouses.—There are two storage warehousing facilities at Chester available for the handling of vessel cargo. They are the South Chester Terminal & Warehousing Co., situated at the foot of Thurlow Street, and Headley's Express & Storage Co., Inc., at Fifth and Upland Streets.

The South Chester Terminal & Warehousing Co. operates the pier at the foot of Thurlow Street for the handling of general cargo in foreign and coastwise trade. There are two steel-frame and metal-covered one-story buildings, situated in the rear of the pier, which are available for dry storage. The buildings have floor areas of 2,000 and 4,500 square feet, and are capable of supporting 250 pounds per square foot of allowable floor load. Roof trusses are 8 and 14 feet above floor level. Commodities usually stored include paper manufactures, wood pulp, manufactures of iron and steel, cork, and general merchandise. Railroad spurs serving the pier warehouses connect with the Pennsylvania Railroad and the Reading Railway system. Hand trucks and a hydraulic stacking machine are available for handling commodities in the buildings.

Headley's fireproof warehouse, operated by Headley's Express & Storage Co., Inc. at Fifth and Upland Streets, is about 2,000 feet distant from the water front. Dry storage only is available, the commodities usually handled being flour, sugar, and general merchandise. The building is a 5-story reinforced concrete structure, having a total floor area of 75,000 square feet with a height of 10 feet between floors, and allowable floor loads of 150 pounds per square foot. The warehouse is served by a 5-car capacity railroad spur connecting with the Pennsylvania Railroad. The building is equipped with a 40,000-gallon tank on the roof, and a dry sprinkler system. Mechanical facilities for transfer between ship and warehouse include three auto-crane trucks with 24-foot booms, having lifting capacities of 6 tons at 10-foot radius and one-half ton at 20-foot radius.

Bulk freight storage.—The water front of Chester is occupied mainly by industries which generally have open areas for the storage of raw material and such finished products as are not susceptible to damage by weather and are for private use only. About 4 acres of ground are available for open storage at the South Chester terminal at the foot of Thurlow Street. Terminal trackage on the terminal pier and in the yard connects with the Pennsylvania Railroad and the Reading Co., and locomotive cranes are available for handling.

VIEW SHOWING SUN SHIPBUILDING & DRY DOCK CO. AT CHESTER, PA.

Two lifting magnets, one 45 inches and one 52 inches in diameter, are also available. There are also about 2 acres of open ground in the rear of Headley's Express & Storage Co. warehouse, at Fourth and Upland Streets, which is part of this establishment. A three-car railroad spur and auto-crane trucks for handling bulk commodities are available.

Dry docks and marine railways.—The Sun Shipbuilding & Dry Dock Co. operates two floating drydocks in its yard at the foot of Morton Street, with capacities of 10,000 tons each. Dock No. 1 has a bottom length of 462 feet, a width of 93 feet at the coping and 84 feet at a point 6 feet above the sill. The depth on the keel blocks is 21 feet at mean high water. The dock is of steel construction and consists of two sections. The pier at which the dock is berthed is equipped with an electric traveling gantry crane, having a lifting capacity of 17 tons at 30-foot radius and 1½ tons at 100-foot radius. Dock No. 2 has a bottom length of 410.2 feet, a width of 97 feet at the coping and 88 feet at a point 6 feet above the sill. The depth on the keel blocks is 16 feet at mean high water. This dock is of wooden construction and is in five sections. The lifting facility at the pier, alongside the dock, is an electric traveling gantry crane, having a capacity of 15 tons at 52-foot radius and 2 tons at 100-foot radius.

Marine repair plants.—The facilities for ship repair at Chester are unequaled at any locality on the Delaware River. The extensive plant of the Sun Shipbuilding & Dry Dock Co. is equipped with two floating drydocks with capacities of 10,000 tons each and complete shops. Line shafts up to 14 feet in length and 22 inches in diameter and tail shafts up to 19½ feet in length and 17 inches diameter may be produced, as well as iron castings up to 35 tons. Repairs of any description on hulls and superstructures of vessels, as well as on engines, boilers, etc., may be undertaken at this plant, which is shown under reference Nos. 40–44 on the map and in the descriptive table on pages 27 and 28.

The Penn Steel Castings Co., situated at the foot of Penn Street, near reference No. 31 on the map, is equipped to produce large castings, such as for sternposts, or other parts of vessels, or vessel gear. Steel castings up to 60 tons may be produced. The normal stock of material on hand is 150 tons of pig iron and 300 tons of iron and steel scrap. The equipment of the plant includes three 25-ton open-hearth furnaces, pattern, machine, and chipping shops.

Railroads.—The port of Chester is served by the Pennsylvania and the Baltimore & Ohio Railroads and the Reading Railway System. A description of these lines is shown on page 41.

Facilities for interchange between rail and water.—Direct interchange between rail and water is provided at the pier of the South Chester Terminal & Warehousing Co., near the foot of Thurlow

Street. The Pennsylvania Railroad and the Reading Railway System have physical connection with the terminal trackage, while the Baltimore & Ohio Railroad has connection through the Reading Co. The Pennsylvania Railroad reaches its main line at the Thurlow yards, a short distance from the terminal pier, while the Reading Co. connects with its main line at the Darby Creek yard in Philadelphia.

Switching.—The following charges of the Pennsylvania Railroad are, for the character of the service performed, representative charges at the port. For movement of all traffic from sidings on the Pennsylvania Railroad to the junction of the Reading Co. at Chester, a charge of $4.05 per car applies when destined to points on the Reading Co. and connecting lines beyond Chester and Marcus Hook. On all freight originating in Chester for movement from private sidings on the Pennsylvania Railroad to private sidings on the Reading Co. at Chester and Marcus Hook, a charge of $13.50 per car applies on road-haul and $16 per car on non-road-haul traffic. Intraplant switching is assessed $2.70 per car on road-haul and $3.15 per car on non-road-haul traffic. For movement of all freight between industrial, private, and public sidings, a charge of $6.75 applies on road-haul and $8.10 on non-road-haul traffic. The foregoing charges do not apply on traffic to or from water lines.

Tariff authority, Pennsylvania Railroad tariff 1589, I. C. C. 691.

Car demurrage.—The general provisions regarding car demurrage are shown on page 42.

Diversion and reconsignment.—The general provisions regarding diversion and reconsignment are shown on page 42.

Transit privileges.—The provisions regarding transit privileges, as shown for Marcus Hook, Pa., on page 56, also apply at Chester.

Miscellaneous charges.—The provisions regarding miscellaneous charges, as shown for Marcus Hook, Pa., on page 57, also apply at Chester.

Commerce.—The volume of water-borne commerce at Chester, including a negligible quantity handled at Eddystone and Essington, amounted to 813,776 tons during the calendar year 1937, and was the largest annual volume in the 6-year period 1932–37. Statistics for the years prior to 1932 are not available. More than half of the commerce of the port moved in foreign and coastwise trades in nearly equal volume. Foreign traffic amounted to 225,743 tons, or 27.7 percent of the total port commerce, and coastwise traffic was 229,359 tons, or 28.2 percent. Local and intraport traffic amounted to 310,160 tons, representing 38.1 percent of the total, while the internal traffic consisted of 48,514 tons, or 6 percent.

In the foreign traffic, imports were 93,334 tons, of which 82 percent consisted of receipts of chrome ore, magnesite, and wood pulp. The exports amounted to 132,409 tons, the principal commodity being

auto parts. In the coastwise traffic, receipts were 133,081 tons and shipments 96,278 tons. The principal commodities in coastwise receipts were coal, pig iron, and auto parts, while iron and steel pipe, plates, sheets, etc., comprised the greatest part of the total in coastwise shipments.

A comparative statement showing the volume of commerce in the several classes of traffic at Chester during the 6-year period 1932–37 is presented on page 44, while the details of the commerce during the calendar year 1937 are shown in the following table:

Water-borne commerce on Delaware River, at Chester, Eddystone, and Essington, Pa., calendar year 1937

[Quantities expressed in short tons]

IMPORTS	
Vegetable products, inedible:	
Dyewood extracts	40
Licorice root	1,120
Logwood	15,540
Wood and paper: Wood pulp	22,633
Nonmetallic minerals: Magnesite	21,488
Ores, metals, and manufactures: Chrome ore	32,513
Total, imports	93,334
EXPORTS	
Vegetable products, inedible:	
Rubber manufactures	1,136
Starch	377
Wood and paper: Paper manufactures	884
Nonmetallic minerals:	
Petroleum products	1,107
Sand	100
All other	144
Ores, metals, and manufactures of:	
Chrome ore	281
Iron and steel:	
Pipe	986
Plates, sheets, etc	183
Wire and manufactures	134
Machinery and vehicles:	
Auto parts	124,486
Batteries	144
Machinery and parts	283
EXPORTS—continued	
Chemicals:	
Industrial chemicals	233
Paints	1,718
Unclassified:	
Containers, empty	118
General merchandise	95
Total, exports	132,409
COASTWISE RECEIPTS	
Wood and paper: Lumber	2,393
Nonmetallic minerals:	
Coal, bituminous	59,702
Fuel and gas oil	7,308
Magnesite	4,001
Sulphur, crude	9,752
Ores, metals, and manufactures of:	
Iron and steel:	
Pig iron	30,492
Sheets, plates, etc	2,108
Machinery and vehicles: Auto parts	17,308
Unclassified: General merchandise	17
Total, coastwise receipts	133,081
COASTWISE SHIPMENTS	
Wood and paper:	
Cork and manufactures of	134
Paper stock	97

Water-borne commerce on Delaware River, at Chester, Eddystone, and Essington, Pa., calendar year 1937—Continued

[Quantities expressed in short tons]

COASTWISE RECEIPTS—Continued	
Wood and paper—Continued	
Toilet paper	6,017
Wallboard	241
Nonmetallic minerals: Petroleum products	930
Ores, metals, and manufactures of:	
Iron and steel:	
Pipe	63,497
Plates, sheets, etc	14,473
Semimanufactures	4,681
Structural	168
All other	120
Machinery and vehicles: Automobiles and parts	4,725
Chemicals:	
Sodium compounds	1,070
All other	25
Unclassified: General merchandise	100
Total, coastwise shipments	96,278
INTERNAL RECEIPTS	
Wood and paper:	
Lumber	26
Piling	273
Wood pulp	45,505
Ores, metals, and manufactures of:	
Iron and steel:	
Pig iron	700
Scrap	5
Tin plate	51
Unclassified: General merchandise	649
Total, internal receipts	47,209
INTERNAL SHIPMENTS	
Vegetable products, inedible: Dyeing and tanning materials	448
Ores, metals, and manufactures of: Iron and steel pipe	645
Machinery and vehicles: Auto parts	212
Total, internal shipments	1,305
INTRAPORT RECEIPTS	
Nonmetallic minerals: Fuel and gas oil	41,123
Total, intraport receipts	41,123
INTRAPORT SHIPMENTS	
Chemicals: Coal tar	4,264
Total, intraport shipments	4,264
LOCAL	
Wood and paper: Paper and manufactures of	378
Nonmetallic minerals:	
Coal, bituminous	228,271
Petroleum products	31,474
Ores, metals, and manufactures of: Iron and steel pipe	670
Chemicals: Unspecified	890
Unclassified: General merchandise	3,090
Total, local	264,773

Water-borne commerce on Delaware River, at Chester, Eddystone, and Essington, Pa., calendar year 1937—Continued

[Quantities expressed in short tons]

SUMMARY

Foreign:		Internal:	
Imports	93, 334	Receipts	47, 209
Exports	132, 409	Shipments	1, 305
Total, foreign	225, 743	Total, internal	48, 514
		Intraport:	
Coastwise:		Receipts	41, 123
Receipts	133, 081	Shipments	4, 264
Shipments	96, 278	Total, intraport	45, 387
		Local	264, 773
Total, coastwise	229, 359	Grand total, all traffic	813, 776

BRIDGEPORT, N. J.

General description.—Bridgeport is situated on Raccoon Creek, which enters Delaware River on the east bank opposite the lower part of Chester, Pa. A highway extends to the landing of a vehicular and passenger ferry on Raccoon Island, fronting on Delaware River. The ferry plys between this place and Chester, Pa.

Piers, wharves, and docks.—The ferry landing of the Delaware River Ferry Co., consisting of one boat slip, is the only terminal facility on the Delaware River at Bridgeport. This facility is shown under reference No. 45 on the map and in the descriptive table on page 28.

EDDYSTONE, PA

General description.—Eddystone is situated on the west bank of the Delaware River about 15 miles below Chestnut Street, Philadelphia, Pa. It has a water frontage of about 1½ miles. The Marcus Hook anchorage ground lies below and the Mantua Creek anchorage ground above this place. The Thompson Point anchorage ground, for vessels loading explosives only, is almost directly opposite.

Piers, wharves, and docks.—Three terminals are situated on the water front at Eddystone, the largest of these being the wharf of Baldwin Locomotive Works which has a total berthing space of 1,965 linear feet. Two cranes on this wharf are among the largest on the Delaware River. The Eddystone Manufacturing Co. operates a 400-foot pier near the lower end of the water front and the General Steel Castings Corporation uses a pipe line pier on Darby Creek for the receipt of fuel oil. These terminals are shown under reference Nos. 46–48 on the map and in the descriptive table on page 29.

Marine repair plants.—The Eddystone plant of the General Steel Castings Corporation operates a foundry and pattern shops for the production of castings for engines, dredge spuds, sternposts, anchors, and other marine castings. Steel castings up to 50 tons may be produced here. A supply of about 12,000 tons of pig iron, and iron and steel scrap is usually kept in stock.

Railroads.—Eddystone is served by the Pennsylvania and Baltimore & Ohio Railroads and the Reading Railway System. A description of these lines is shown on page 41.

Switching.—For movement of all freight between industrial, private, and public sidings, a charge of $6.75 per car applies on road-haul, and $8.10 per car on non-road-haul traffic. Intraplant switching is assessed $2.70 per car on road-haul, and $3.15 per car on non-road-haul traffic. Tariff authority, Pennsylvania Railroad 1589, I. C. C. 691.

Car demurrage.—The general provisions governing car demurrage are shown on page 42.

Diversion and reconsignment.—The general provisions governing diversion and reconsignment are shown on page 42.

Commerce.—Statistics of water-borne commerce at Eddystone are not available separately, being included in that of Chester.

ESSINGTON, PA.

General description.—Essington, situated about 14 miles below Chestnut Street, Philadelphia, on the west bank of Delaware River, is known as the yacht harbor of Philadelphia. The Corinthian and Philadelphia Yacht Clubs have their facilities here.

Piers, wharves, and docks.—The Yacht Repair & Storage Co. operates a pier in connection with a marine repair yard for small boats. It is shown under reference No. 49 on the map and in the descriptive table on page 30.

Dry docks and marine railways.—Four marine railways are operated by the Yacht Repair & Storage Co. One is equipped with a 110-foot cradle, having a width of 36 feet on the keel blocks and a lifting capacity of 150 tons. The depths over the keel blocks are 7 feet forward and 11 feet aft. Two other railways are identical except for the length of cradles, one being 46 feet long and the other 57 feet long. The widths on the keel blocks are 18 feet, depths over keel blocks 4 feet forward and 6 feet aft, and the lifting capacity 75 tons. The fourth railway is equipped with a cradle 35 feet long and 12 feet wide on the keel blocks, the depths over the keel blocks being 5 feet forward and 7 feet aft. Its capacity is 20 tons.

Marine repair plants.—The shops of the Yacht Repair & Storage Co., including machine, carpenter, and paint shops, are equipped for repairs to hulls and engines of small craft. Shafts of 2½-inches by

20 feet may be produced. A sufficient stock of lumber and other necessary materials for current needs is kept on hand.

Airports.—The Essington Seaplane School is situated at the foot of Wanamaker Avenue, 10 miles southwest of the city hall at Philadelphia. There is a ramp, and facilities are available for servicing seaplanes in day time.

Commerce.—Statistics of water-borne commerce at Essington are not available separately, being included in that of Chester.

THOMPSON POINT, N. J.

General description.—This locality is situated on the east bank of Delaware River about 14 miles below Chestnut Street, Philadelphia. It is the site of a chemical plant of E. I. du Pont de Nemours & Co. An anchorage ground for vessels loading explosives only is located off this point.

Piers, wharves, and docks.—The water front facilities of E. I. du Pont de Nemours & Co. at Thompson Point include a single-bridge car ferry terminal, one wharf, and one pier. These are shown under reference Nos. 50 to 52 on the map and in the descriptive table on pages 30 and 31.

Floating equipment.—The floating equipment of E. I. du Pont de Nemours & Co. used for the transportation of material between the plants of that company situated at various points on Delaware River and tributaries, as well as for the movement of loaded and empty railroad cars between these plants and railroads, are based at Thompson Point. A description of these various pieces of floating equipment is shown in the following table:

Floating equipment

Type	Towboat	Barges		Car floats	Launch
Owner Address	E. I. du Pont de Nemours & Co. Wilmington, Del.				
Purpose for which used	Towing car floats and barges	Transporting private freight		Transporting railroad cars	Interplant taxi service.
Base from which operated	Thompson Point, N. J.	Thompson Point, N. J.		Thompson Point, N. J.	Thompson Point, N. J.
Zone of operations	Delaware River and tributaries	Delaware River and tributaries		Delaware River	Delaware River and tributaries.
Number available	1	1	1	1	1
Length	63 feet	160 feet	194 feet	98 feet	21.5 feet.
Beam	18 feet	31.5 feet	23.8 feet	30 feet	5 feet.
Draft, loaded	10 feet	2.5 feet	3 feet	2 feet	2.5 feet.
Indicated horsepower	150				23.
How operated	Steam	Towed	Towed	Towed	Gasoline motor.
Open or covered		Open	Open	Open	
Cargo capacity		500 tons	750 tons	250 tons	

Commerce.—The volume of water-borne commerce at Thompson Point amounted to 57,637 short tons during the calendar year 1937. The commodities involved in this commerce were chemicals, explosives, and petroleum products. Foreign trade was entirely in export traffic and amounted to 1,939 tons, or 3.4 percent of the whole. The volume of coastwise traffic was 24,665 tons, representing 42.8 percent of the commerce, while 5,725 tons, or 9.9 percent, moved in internal traffic. The greatest volume moved in intraport and local traffic. This amounted to 25,308 tons, or 43.9 percent.

A comparative statement showing the volume of commerce in the several classes of traffic at Thompson Point during the 6-year period 1932–37 is presented on page 69, while the details of the commerce during the calendar year 1937 are shown below.

Water-borne commerce of Thompson Point, N. J., calendar year 1937

[Quantities expressed in short tons]

Exports:	
Chemicals:	
Ammonium nitrate	100
Explosives	1,825
All other	1
Unclassified:	
Ammunition	1
Containers	12
Total exports	1,939
Coastwise receipts:	
Nonmetallic minerals: Gasoline	1,500
Chemicals:	
Acid, sulphuric	21,227
Nitrate of soda	1,120
Total coastwise receipts	23,847
Coastwise shipments:	
Chemicals: Acid, sulphuric	818
Total coastwise shipments	818
Internal receipts:	
Chemicals:	
Acid, sulphuric	1,750
Nitrate of soda	2,240
Total internal receipts	3,990
Internal shipments:	
Chemicals: Acid, sulphuric	1,735
Total internal shipments	1,735
Intraport receipts:	
Nonmetallic minerals:	
Petroleum products	5,788
Total intraport receipts	5,788
Local traffic:	
Nonmetallic minerals: Fuel and gas oil	19,520
Total local traffic	19,520
Grand total, all traffic	57,637

PAULSBORO, N. J.

General description.—Paulsboro is situated on the east bank of Delaware River at the mouth of Mantua Creek, about 10 miles below Chestnut Street, Philadelphia. The borough has a frontage of about 6,600 feet on Delaware River below the mouth of Mantua Creek and 15,000 feet on the west side of the creek. That part of the borough fronting on Delaware River is sometimes known as Billingsport. The Mantua Creek anchorage ground lies off the mouth of the creek. A detailed description of it is shown on page 5.

Tides.—Tidal data for the Delaware River are shown on page 4. The mean range of tide in Mantua Creek is 5.2 feet at the mouth and 5.0 feet in the vicinity of the highway bridge about 1.7 miles above the mouth of the creek.

Bridges.—Mantua Creek at Paulsboro is crossed by two bridges, the details of which are as follows:

Bridge	Kind	Miles above mouth	Least width of draw opening	Clear height above high water
			Feet	*Feet*
Pennsylvania R. R.	Swing	1.44	35.5	1.7
Gloucester County highway	do	1.68	41.0	4.0

Harbor improvements by the United States.—Harbor improvements in Delaware River are treated on page 7. The existing project for the improvement of Mantua Creek, N. J., provides for a channel 12 feet deep at mean low water and 100 feet wide from the Delaware River to the Strathmann sand plant in Paulsboro, about 2 miles above the mouth, thence 10 feet deep and 60 feet wide to Friars Landing, about 2,000 feet, thence 7 feet deep and 60 feet wide via cut-offs to Parkers Landing near Mount Royal; for the dredging of a cut-off 3 feet deep and 50 feet wide 9,000 feet above Berkeley (Mount Royal); and for the construction of stone-filled pile and timber jetties on both sides of the mouth and a dike across the old mouth 524 feet long. The project was 66 percent completed on June 30, 1937. Work remaining to be done is to complete the dredging to project dimensions.

Oil bunkering.—There are two oil bunkering facilities at and near Paulsboro. These are the Patterson Oil Co., situated on the Delaware River near the mouth of Mantua Creek, and the Socony-Vacuum Oil Co. at Bramell Point, a short distance below Paulsboro.

The Patterson Oil Co. has a total storage capacity of 921,250 barrels. The maximum supplies of fuel oils kept in stock are: Bunker C, 320,000 barrels; No. 5 fuel oil, 167,500 barrels; No. 4 fuel oil, 80,000 barrels; and No. 2 fuel oil, 160,000 barrels. The normal supplies of these oils are 240,000, 125,700, 60,000, and 120,000 barrels, respectively. The facility has 522 linear feet of berthing space with 30 feet of water alongside at mean low water, and the bunkering capacity is 1,400 barrels per hour. The wharf is shown under reference No. 55 on the map and in the descriptive table on page 32. This company is prepared to deliver fuel oil to vessels at their berths or in stream through the use of tank barges of the Terminal Transport Co. There are two such barges having cargo capacities of 685 and 765 tons, each equipped with pumps enabling them to deliver at the rate of 1,000 barrels per hour. These barges are described in the tabulation of floating equipment on page 72.

The Socony-Vacuum Oil Co. has a total storage capacity of 4,500,000 barrels. The maximum supply of fuel oil kept in stock is 300,000 barrels of Bunker C grade. The normal supply on hand is 150,000 barrels. There are 2,300 linear feet of berthing space at the plant with 33 feet of water alongside at mean low water. The bunkering capacity is 1,400 barrels per hour. The wharf is shown under reference No. 53 on the map and in the descriptive table on page 31.

Piers, wharves, and docks.—There are 11 piers and wharves on the water front of the borough of Paulsboro, of which 8 are situated on the banks of Mantua Creek and 3, including 1 just below the borough limits, are on the Delaware River water front. The 11 piers and wharves have an aggregate berthing space of 5,177 feet with water depths up to 33 feet alongside those on the river and up to 12 feet alongside those on the creek. Four terminals are operated for the handling of petroleum, one of which is also equipped to furnish bunker fuel oil to vessels; two are for the handling of sulphur, and one each for the handling of fertilizer, acid, coal, and sand and gravel. One wharf is not used in connection with water-borne commerce at the present time. The piers and wharves are shown under reference numbers 53 to 63 on the port facilities map and in the descriptive table on pages 31 to 34.

Floating equipment.—A number of towboats and barges are operated out of Paulsboro by industries located there. These are described in the following table:

Floating equipment

TOWBOATS

Owner Address	A. R. Gellenthin Paulsboro, N. J.	Paulsboro Transportation Co. Paulsboro, N. J.		Strathmann Sand & Gravel Corporation Paulsboro, N. J.
Purpose for which used	Towing coal barges	Towing sand and gravel barges		Towing sand and gravel barges.
Base from which operated	Paulsboro, N. J	Paulsboro, N. J		Paulsboro, N. J.
Zone of operations	Delaware River and tributaries	Delaware River and tributaries		Delaware River and tributaries.
Number available	1	1	1	1
Length	52.0 feet	45.8 feet	57.7 feet	69.0 feet.
Beam	15.0 feet	13.6 feet	11.7 feet	18.0 feet.
Draft, loaded	6.0 feet	5.7 feet	4.1 feet	7.5 feet.
Indicated horsepower	100	150	90	150.
How operated	Diesel	Diesel	Diesel	Steam.
Remarks		Draft is represented by depth of vessels.		

BARGES

Owner Address	A. R. Gellenthin Paulsboro, N. J.		Socony-Vacuum Oil Co. Paulsboro, N. J.	Strathmann Sand & Gravel Corporation Paulsboro, N. J.			Terminal Transport Co. Paulsboro, N. J.	
Purpose for which used	Transporting coal		Transporting petroleum products	Transporting sand and gravel			Transporting petroleum products and bunkering vessels.	
Base from which operated	Paulsboro, N. J		Paulsboro, N. J	Paulsboro, N. J			Paulsboro, N. J.	
Zone of operations	Delaware River and tributaries		Delaware River and tributaries	Delaware River and tributaries			Delaware River and tributaries.	
Number available	2	1	1	2	1	1	1	1
Length	90.0 feet	60.0 feet	149.6 feet	125.0 feet	110.0 feet	118.0 feet	130.0 feet	110.0 feet.
Beam	20.0 feet	20.0 feet	27.1 feet	32.0 feet	23.4 feet	28.0 feet	30.0 feet	30.0 feet.
Draft, loaded	7.0 feet	7.0 feet	11.2 feet	9.5 feet	7.5 feet	9.0 feet	10.5 feet	10.0 feet.
How operated	Towed	Towed	Towed	Towed	Towed	Towed	Towed	Towed.
Open or covered	Open	Open	Covered	Open	Open	Open	Covered	Covered.
Cargo capacity	200 tons	130 tons	5,000 barrels	750 tons	360 tons	600 tons	685 tons	765 tons.
Bunkering rate per hour							1,000 barrels	1,000 barrels.
Mechanical handling facilities:								
Type and description							Pumps	Pumps.
How operated							Gasoline	Gasoline.
Remarks			Draft is represented by depth of vessel.					

Railroads.—Paulsboro is served by the Pennsylvania-Reading Seashore Lines, a general description of which is given on page 41.

Switching.—Intraplant switching is assessed $3.15 per car when in individual cars on both road-haul and non-road-haul traffic. When in other than individual cars, the charge on road-haul traffic is $3.60 per car and on non-road-haul traffic, $4.95 per car. The foregoing apply at specified industries except at a published oil company when the charge is $2.70 per car on road-haul traffic and $3.15 per car on non-road-haul traffic. On other specified commodities for movement within the plants of the several industries the charges are either $8.10 or $10 per car on non-road-haul traffic. One exception to the latter is a charge of $13.50 per car for a specified movement of fullers earth. Tariff authority, Pennsylvania Railroad 1589, I. C. C. 691.

Car demurrage.—The general provisions governing car demurrage are shown on page 42.

Diversion and reconsignment.—The general provisions governing diversion and reconsignment are shown on page 42.

Commerce.—The water-borne commerce at Paulsboro amounted to 2,692,782 tons during the calendar year 1937, which represented the largest annual volume in the 6-year period 1932–37. Statistics for years prior to 1932 are not available. All of the traffic in foreign and coastwise trades, representing 72.2 percent of the total commerce of the port, passed over the terminals fronting on Delaware River, and consisted mainly of petroleum products. The commerce on the Mantua Creek water front of the port consisted mainly of receipts of sulphur, sulphuric acid, and fertilizer materials, and shipments of sand and gravel and sulphuric acid, practically all of which moved in internal traffic.

The volume of foreign traffic in 1937 was 272,041 tons, of which 116,285 were imports and 155,756 exports. About 99 percent of the volume of imports consisted of fuel oil, and of the exports 80 percent was lubricating oil. The volume of commerce in coastwise traffic was 1,673,847 tons, or 62 percent of the total. The greater part of this traffic consisted of receipts of crude oil.

A comparative statement showing the volume of commerce in the several classes of traffic at Paulsboro during the 6-year period 1932–37 is presented on page 44, while the details of the commerce during the calendar year 1937 is shown in the following table:

Water-borne commerce on Delaware River and Mantua Creek at Paulsboro, N. J., calendar year 1937

[Quantities expressed in short tons]

IMPORTS

Vegetable products, inedible:	
Rapeseed oil	717
Nonmetallic minerals:	
Infusorial earth	153
Petroleum products	114, 931
Unclassified: General merchandise	484
Total, imports	116, 285

EXPORTS

Wood and paper: Paper and manufactures	144
Nonmetallic minerals: Petroleum products	144, 094
Ores, metals and manufactures of: Iron and steel, plates, sheets, etc	200
Machinery and vehicles:	
Machinery and parts	231
Vehicles and parts	141
Chemicals:	
Industrial chemicals	127
Petroleum jelly	261
Unclassified:	
Containers, empty	10, 158
General merchandise	400
Total exports	155, 756

COASTWISE RECEIPTS

Vegetable products, inedible: Rapeseed oil	391
Nonmetallic minerals:	
Petroleum products	1, 524, 391
Sulphur, crude	9, 705
Total, coastwise receipts	1, 534, 487

COASTWISE SHIPMENTS

Nonmetallic minerals:	
Petroleum products	124, 284
Chemicals: Creosote oil	12, 682
Unclassified: General merchandise	2, 394
Total, coastwise shipments	139, 360

INTERNAL RECEIPTS

Wood and paper: Lumber	65
Nonmetallic minerals:	
Coal, anthracite	300
Petroleum products	14, 738
Sulphur, crude	19, 428
Ores, metals and manufactures of: Steel	150
Machinery and vehicles:	
Machinery	375
Chemicals:	
Acid, sulphuric	17, 660
Fertilizer	26, 468
Total, internal receipts	79, 184

INTERNAL SHIPMENTS

Nonmetallic minerals:	
Petroleum products	154, 874
Sand and gravel	193, 650
Chemicals:	
Acid, sulphuric	57, 073
Ethyl fluid	975
Fertilizers	3, 291
Total, internal shipments	409, 863

INTRAPORT SHIPMENTS

Nonmetallic minerals: Petroleum products	88, 762
Chemicals: Ethyl fluid	854
Total, intraport shipments	89, 616

LOCAL

Nonmetallic minerals:	
Petroleum products	148, 225
Sand and gravel	3, 168
Chemicals:	
Acid, sulphuric	16, 493
Nitrate of soda	75
Unclassified:	
Containers, empty	208
General merchandise	62
Total, local	168, 231

Water-borne commerce on Delaware River and Mantua Creek at Paulsboro, N. J., calendar year 1937—Continued

[Quantities expressed in short tons]

SUMMARY

Foreign:		Internal:	
Imports	116, 285	Receipts	79, 184
Exports	155, 756	Shipments	409, 863
Total, foreign	272, 041	Total, internal	489, 047
Coastwise:		Intraport: Shipments	89, 616
Receipts	1, 534, 487	Local	168, 231
Shipments	139, 360		
Total, coastwise	1, 673, 847	Grand total, all traffic	2, 692, 782

List of piers, wharves, and docks at ports on Delaware River

NEW CASTLE, DEL., TO PHILADELPHIA, PA.

Reference number on map	Name	Location	For description see page—
1	City wharf	New Castle, Del.	14
2	New Castle ferry	do	14
3	Pennsville ferry	Pennsville, N. J.	14
4	Wilson Line pier	do	
5	Deepwater generating station wharf	Deepwater Point, N. J.	15
6	Du Pont main wharf	do	
7	Du Pont car-float bridge	do	
8	Du Pont passenger and freight wharf	do	16
9	Pennsgrove ferry	Pennsgrove, N. J.	
10	Wilson Line pier	do	
11	Du Pont wharf	Edgemoor Del.	17
12	Lighthouse pier, south	do	
13	Lighthouse pier, north	do	
14	Texas Co. pier	Claymont, Del.	18
15	General Chemical Co. pier	do	
16	Quarantine station pier	Marcus Hook, Pa.	
17	Pure Oil Co. pier	do	19
18	Sun Oil Co. pier, lower	do	
19	Sun Oil Co. pier, upper	do	
20	Sinclair Refining Co. pier	do	20
21	Cities Service Oil Co. wharf	Chester, Pa.	
22	South Chester Terminal pier	do	
23	Delaware River Steel Co. pier	do	21
24	Philadelphia Electric Co. bulkhead	do	
25	Chester ferry	do	
26	Philadelphia Electric Co. bulkhead	do	22
27	American Dyewood Co. wharf	do	
28	Philadelphia Quartz Co. wharf	do	
29	Ford Motor Co. pier	do	23
30	Chester Water Service Co. wharf	do	
31	Chester Materials Co. wharf	do	
32	Edgemont Ave. wharf	do	24
33	Consumers Ice & Coal Co. wharf	do	
34	Scott Paper Co. bulkhead	do	
35	Chester Shipping Co. wharf	do	25
36	Market St. pier	do	
37	Scott Paper Co. bulkhead	do	
38	Scott Paper Co. pier	do	26
39	Harbison-Walker pier	do	
40	Sun Shipbuilding & Dry Dock Co. pier No. 4	do	
41	Sun Shipbuilding & Dry Dock Co. wharf No. 3–A	do	27
42	Sun Shipbuilding & Dry Dock Co. pier No. 3	do	
43	Sun Shipbuilding & Dry Dock Co. pier No. 2	do	
44	Sun Shipbuilding & Dry Dock Co. pier No. 1	do	28
45	Bridgeport ferry	Bridgeport, N. J.	
46	Eddystone Manufacturing Co. pier	Eddystone, Pa.	
47	Baldwin Locomotive Works wharf	do	29
48	General Steel Castings Corporation pier	do	
49	Yacht Repair & Storage Co. pier	Essington, Pa.	
50	Du Pont Car float bridge	Thompson Point, N. J.	30
51	Du Pont acid wharf	do	
52	Du Pont main wharf	do	
53	Socony-Vacuum Oil Co. wharf	Paulsboro, N. J.	31
54	United Petroleum Co. wharf	do	
55	Patterson Oil Co. wharf	Paulsboro, N. J.	
56	I. P. Thomas & Son Co. wharf	do	32
57	Grasselli lower wharf	do	
58	Grasselli upper wharf	do	
59	Miller Lumber Co. wharf	do	33
60	Gellenthin Coal wharf	do	
61	Chew Service Co. wharf	do	
62	Strathmann sand and gravel wharf	do	34
63	Petrol Corporation wharf	do	

LT. COL., CORPS OF ENGINEERS, U. S. A.

DRAWN BY K.E.D.

OCTOBER, 1937

WAR DEPARTMENT

CORPS OF ENGINEERS, U.S. ARMY

LEGEND

- CUSTOM HOUSE
- GENERAL CARGO TERMINAL — FOREIGN TRADE
- GENERAL CARGO TERMINAL — COASTWISE & INTERCOASTAL TRADE
- TERMINALS OF INLAND CARRIERS
- BUNKER OIL
- STORAGE WAREHOUSE
- SULPHUR HANDLING
- FERTILIZER PLANT
- SHIPBUILDING PLANT
- SAND & GRAVEL
- CHEMICAL PLANTS
- RAILWAY PASSENGER STATION
- CAR FLOAT BRIDGES
- FERRIES — PASSENGER & VEHICULAR
- COAL HANDLING PLANT
- OIL HANDLING PLANTS
- DRY DOCKS
- MARINE RAILWAYS
- MARINE REPAIR PLANTS

BOARD OF ENGINEERS
FOR RIVERS AND HARBORS

PORTS ON THE DELAWARE RIVER
NEW CASTLE, DEL. TO PHILA., PA.

000 SQ. MILES — 100 SQ. MILES

SUBMITTED

CHIEF STATISTICIAN

DATA BY

APPROVED

CORPS OF ENGINEERS, U.S.A.

DRAWN BY

PORTS ABOVE PHILADELPHIA

PORT AND HARBOR CONDITIONS

GENERAL DESCRIPTION

The Delaware River above Philadelphia, as contemplated in this report, embraces the 29 mile section of the river extending from Delair, N. J., to the head of navigation in Trenton, on the banks of which the following localities are situated: Delair, Burlington, and East Burlington, N. J.; Bristol, Pa.; Florence, Roebling, Fieldsboro, and Trenton, N. J.

CHANNELS

A dredged channel 28 feet deep at mean low water and 300 feet wide extends from Allegheny Avenue, Philadelphia, to the Delair Bridge of the Pennsylvania Railroad Co., thence 25 feet deep and 300 feet wide to the upper end of the Marine Terminal at Trenton, N. J., thence 12 feet deep and 200 feet wide to the Pennsylvania Railroad bridge at Trenton. The controlling depths as of June 1937 were: Allegheny Avenue to Delair Bridge, 29.6 feet; Delair Bridge to Delanco, 25.9 feet; Delanco to Florence, 24.4 feet; Florence to Bordentown, 27.2 feet; Bordentown to upper end of turning basin at the Trenton Marine Terminal, 24.9 feet; and thence to Pennsylvania Railroad bridge, 10.1 feet.

A channel 20 feet deep and 200 feet wide extends from the main channel off Burlington, along the east side of Burlington Island, to the upper end of the plant of the U. S. Pipe and Foundry Co. at East Burlington.

TIDES AND TIDAL CURRENTS

The Delaware River is tidal to the head of navigation. The mean tidal ranges at localities on the river above Philadelphia are: At Burlington, N. J., 5.8 feet; at Florence, N. J. and at Trenton, N. J., 6.0 feet. Freshets, which occur usually during February and March, attain a height in the vicinity of Trenton of 9 to 20 feet above mean low water, with a velocity of about 6 miles an hour.

ANCHORAGES

There are no prescribed anchorage grounds in this section of the river. Those situated below Philadelphia are described on page 4.

WEATHER CONDITIONS

The conditions of weather on the Delaware River between Philadelphia and Trenton are approximately the same as those prevailing at Philadelphia, to which port the following data, excepting for ice conditions, are applicable.

Open season for navigation.—The river is open for navigation throughout the year.

Prevailing winds.—The prevailing winds are northwest from October to April and southwest from May to September. They are, however, subject to many variations at all seasons.

Ice.—Navigation above Bristol may be hampered by ice during January and February.

Fogs.—Fogs are most frequent along this part of the Atlantic coast during the months of December, January, and February, but may be met at other times during the year. Easterly winds bring them and westerly and northerly winds clear them away. In the late fall dense fogs are liable to occur and may last during forenoons for 2 or 3 days in succession. Autumnal fogs nearly always clear up before noon. It should be noted, however, that fogs are less prevalent along this part of the Atlantic coast than they are farther north.

The following table shows the average number of hours per month from a record of 11 years (July 1926–June 1937) that fog signals were operated in the harbor of Philadelphia.

Hours of operation of fog signals at Fort Mifflin

January	61	August	5
February	35	September	8
March	21	October	18
April	5	November	32
May	6	December	57
June	3		
July	3	Total	254

Precipitation.—There is no rainy season. The mean annual precipitation covering a period of 66 years is 40.84 inches.

Temperature.—The mean maximum annual temperature covering a period of 57 years is 62.3°, while the mean minimum temperature for the same period is 46.6° Fahrenheit.

The following information has been furnished by the Weather Bureau, United States Department of Agriculture.

Meteorological data

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Daily mean maximum temperature, degrees Fahrenheit, for 57 years												
39.9	40.9	49.4	60.7	72.0	80.4	84.7	82.2	76.4	65.3	52.9	42.7	62.3
Daily mean minimum temperature, degrees Fahrenheit, for 57 years												
26.2	26.6	33.5	43.1	53.7	62.8	68.2	66.5	60.5	49.5	39.1	29.8	46.6
Maximum wind velocities and direction for 65 years [1]												
47	44	47	47	68	48	49	43	45	58	47	49	68
NE.	S.	NW.	NE.	NW.	NW.	N.	NE.	NE.	SE.	E.	SE.	NW.
Prevailing direction of wind for 65 years												
NW.	NW.	NW.	NW.	SW.	SW.	SW.	SW.	SW.	NW.	NW.	NW.	NW.
Mean precipitation (inches) for 66 years												
3.30	3.26	3.38	3.14	3.22	3.36	4.23	4.69	3.38	2.80	2.92	3.16	40.84

[1] Reduced to 3-cup anemometer standard.

BRIDGES

The Delaware River above Philadelphia is crossed by one bridge. This structure is a vertical lift bridge, extending from Burlington, N. J., to Bristol, Pa., and is owned and operated as a highway toll bridge by the Burlington-Bristol Bridge Co. It has a center channel span of 500 feet with 180-foot spans to the left and right of the center. The clear height of the span when down is 62.3 feet at mean high water and when the span is raised it is 135 feet.

RULES AND REGULATIONS TO GOVERN THE OPENING OF THE DRAW SPANS OF DRAW-BRIDGES ACROSS THE SCHUYLKILL RIVER, THE DELAWARE RIVER, AND THE CHANNEL BETWEEN PETTY ISLAND AND THE NEW JERSEY SHORE, DELAWARE RIVER

1. *Signals.*—When at any time during the day or night any vessel, tug, or other water craft unable to pass under the bridge approaches it with the intention of passing through the draw, the signal for the draw to be opened shall be three blasts of a whistle or horn blown on the vessel or craft.

If the draw is ready to be opened immediately when the signal is given on the vessel or craft, the signal shall be answered immediately by two blasts of a whistle or horn blown on the bridge; and if the draw is not ready to be opened immediately on the signal being given on the craft, the signal shall be answered immediately by one blast of a whistle or horn blown on the bridge.

2. *Opening the draw.*—Upon hearing or perceiving the prescribed signal, the bridge tender shall immediately clear the draw span and open the draw to its full extent for the passage of the vessel or other craft: *Provided*, That the draw of a railroad bridge need not be opened when there is a train in the bridge block approaching the bridge with the intention of crossing, nor within five minutes of the known time of passage of a scheduled passenger, mail, or express train; but in no event, except in case of breakdown of the operating machinery, shall the opening of the draw be delayed more than five minutes in the case of a highway bridge, nor more than 10 minutes in the case of a railroad bridge: *And provided further*, That the draw need not be opened for the passage of a tug or other craft equipped with a movable stack or mast which can readily be lowered so as to permit its passage under the closed draw, unless such craft has in tow a vessel which is unable to pass under the closed draw, or by reason of stress of weather it is unsafe to lower such stack or mast.

3. *Interference with operation.*—Vehicles, street cars, locomotives, and trains shall not be stopped on the draw spans, nor shall locomotives or trains be stopped in the bridge blocks of railroad bridges in such manner as to delay the operation of the draw, except in case of urgent necessity; nor shall vessels be moored to the bridge fenders or so maneuvered as to unnecessarily hinder or delay the closing of the draw; but all passages over, through, or under the bridges shall be prompt, to avoid delay to either land or water traffic.

4. *Hinged stacks and masts.*—Each tug, towboat barge, and other small craft regularly and habitually navigating the Schuylkill River shall be subject to inspection and measurement by the district engineer, United States Engineer Department, in charge of the district, to determine the exact height above the water surface of its pilot or deck houses, when such vessel is in its ordinary trim; and the said district engineer is hereby empowered to decide in each case, whether or not the vessel shall be equipped with hinged or removable stacks, masts, and flagpoles, which can be lowered to enable the vessels to pass under the closed draw of any or all of the bridges. If the district engineer decides that such action should be taken, he shall notify the vessel owner and the bridge owner of his decision, specifying a reasonable time for making the alterations; and after the expiration of the time specified, the draw need not be opened for the passage of such vessel unless it has in tow a vessel unable to pass under the closed draw, or by reason of stress of weather it is unsafe to lower such stack or mast.

5. *Operating machinery.*—All drawbridges to which these regulations apply shall be equipped with adequate quick-operating power machinery for opening and closing the draw, and this machinery shall at all times be kept in good and effective working condition and manned by competent operators.

6. *Clearance gages.*—The owners of each bridge shall provide and keep in good legible condition two board gages painted white with black figures not less than 6 inches high, to indicate the head-room clearance under the closed span at all stages of the tide. These gages shall be so placed on the ends of the draw-span fenders that they will be plainly visible to the navigator of a vessel approaching the bridge either up or down stream.

HARBOR IMPROVEMENTS BY THE UNITED STATES

The upper Delaware River, between Philadelphia, Pa., and Trenton, N. J., has been under improvement since 1872. The early efforts were mainly directed toward the removal at separate localities of shoals and bars obstructing such navigation as was practicable. In 1910 a more

comprehensive project was adopted for a channel 12 feet deep and 200 feet wide from Allegheny Avenue, Philadelphia, to Trenton, N. J. A later project adopted by the River and Harbor Act of March 3, 1925, and modified by subsequent River and Harbor acts of July 3, 1930, August 30, 1935, and August 26, 1937, have provided for successive increases in channel dimensions and improvements resulting in the existing project, which was essentially completed in 1937, except as noted below.

The existing project provides for a channel 28 feet deep at mean low water and 300 feet wide from Allegheny Avenue, Philadelphia, to the Delair Bridge of the Pennsylvania Railroad Co., thence 25 feet deep and 300 feet wide to the upper end of the Marine Terminal at Trenton, N. J. Above Delair the project provides for widening the channel at curves and for a turning basin at the upper end 1,700 feet long and 500 feet wide and for maintaining the channel dredged under the previous project to a depth of 12 feet at mean low water and a width of 200 feet from the upper end of the 25-foot channel to the Pennsylvania Railroad bridge at Ferry Street, Trenton, N. J. The project also provides for an auxiliary channel 20 feet deep at mean low water and 200 feet wide east of Burlington Island to extend from the main channel to the upper end of the United States Pipe and Foundry Co.'s property at East Burlington, with a turning basin 450 feet wide at the upper end, and for the initial excavation only, of a cross channel through the artificial island opposite Delanco, N. J., 200 feet wide and 8 feet deep at mean low water. The existing project has been completed except for the excavation of the cross channel opposite Delanco, N. J.

TERMINAL IMPROVEMENTS

A notable improvement in terminal facilities was accomplished in 1932 by the construction of the Trenton Marine Terminal at the lower end of the city of Trenton and at the head of the 25-foot river channel. It is owned and operated by the city of Trenton for the handling of general cargo in foreign and domestic trade. The wharf consists of a 1,200-foot concrete bulkhead with 25 feet of water alongside at mean low water and is equipped with transit sheds and storage buildings, as well as a large area for the open storage of commodities not affected by the weather. Railroad trackage extends along the apron of the wharf, connecting directly with the Pennsylvania Railroad and by switching service with the Reading Railway System. The crane tracks of two traveling gantrys extend along the wharf apron for the direct handling of cargo between vessel and car, and lumber carriers are available for the distribution of lumber within the terminal area. The terminal is fully described under reference No. 19 in the table on page 92.

FUEL AND SUPPLIES

Electric current.—The Public Service Electric and Gas Co. supplies alternating current at localities on the New Jersey side of the Delaware River above Camden, the standard service being 120–240 volts, single phase, 60-cycle, for lighting and 240 volts, 3-phase, 60-cycle for power. At localities on the Pennsylvania side of the river, above Philadelphia, the Philadelphia Electric Co. supplies alternating current of 13,200, 4,000, and 115–230 volts, 3-phase, 60-cycle.

Water supply.—Water for boiler use may be taken directly from the river. The availability of fresh water at the individual terminals is shown in the detailed tabular description of piers, wharves, and docks, beginning on page 86.

Oil bunkering.—Facilities for supplying bunker fuel oil to vessels are available at Marcus Hook, Pa., and Paulsboro, N. J., and are described in detail on pages 54 and 70, respectively. Bunker oil facilities are also available at Philadelphia, Pa., and are discussed in Port Series No. 4, the Ports of Philadelphia, Pa., Camden, and Gloucester, N. J.

Coal bunkering.—Coal bunkering facilities are available at Philadelphia, Pa., and are discussed in Port Series Report No. 4, the Ports of Philadelphia, Pa., Camden, and Gloucester, N. J.

AERIAL VIEW OF TRENTON MARINE TERMINAL.

PORT AND HARBOR FACILITIES

PIERS, WHARVES, AND DOCKS

There are a total of 21 wharves at the ports on the Delaware River between Delair and Trenton, N. J., providing berthing space totaling 10,805 linear feet. The depths alongside range up to 25 feet at mean low water. Five wharves have less than 10 feet of water alongside, 14 have from 11 to 19 feet, 1 has 20 feet, and 1 has 25 feet.

There are four public wharves owned and operated by municipalities. One of these is at Burlington, N. J., one at Bristol, Pa., and two at Trenton, N. J. One of the latter is the Trenton Marine Terminal which is of quay-type construction, having berthing space of 1,200 feet with 25 feet of water alongside at mean low water. It is the only terminal in this section of the river equipped to handle general cargo in overseas trade.

The details of the piers, wharves, and docks at the ports on the Delaware River above Philadelphia are shown in the following table. Further reference to them is found elsewhere in this report where the various ports are described.

Piers, wharves, and docks (except dry docks)

DELAWARE RIVER, PHILADELPHIA, PA., TO TRENTON, N. J.

Reference number on map	1	2				3		
Name	Kleckhefer Container Co. wharf	Public Service Co. wharf				Price wharf		
Location on water front	Below Pennsylvania R. R. bridge, Delair, N. J.	2,000 feet below the Burlington-Bristol bridge, Burlington, N. J.				Below foot of High St., Burlington, N. J.		
Owned by	Kleckhefer Container Co.	Public Service Electric & Gas Co.				C. H. Price.		
Operated by	do	do				Do.		
Purpose for which used	Receipt of wood pulp, paper stock, and coal; shipment of cardboard containers.	Receipt of fuel oil.				Receipt of fertilizer.		
Type of construction	Steel sheet pile bulkhead, solid fill.	Open pile wharf.				Concrete retaining walls, solid fill.		
	Bulkhead wharf	Lower side	Upper side	Face or end	Approach	Lower side	Upper side	Face or end
Description:		*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*
Dimensions	190+224 feet.	11	11	30	153x4	110	80	70
Depth of water, m. l. w.	13 feet.			16		0–7	3–7	7
Berthing space available	190+476 feet with dolphins.			190 with dolphins		110	80	70
Width of apron	Open wharf.	Open wharf.				Open wharf.		
Deck above m. l. w.	12 feet.	14 feet.				9 feet.		
Capacity per square foot	250 pounds.					Unlimited.		
Lighted or unlighted	Lighted.	Lighted.				Unlighted.		
Transit sheds on pier	None.	None.				None.		
Mechanical handling facilities	1 gasoline traveling revolving crane, 50-foot reach, capacity 5 tons at 50-foot radius.	1 8-inch pipe line extends to storage tank in rear.				Do.		
Railway connections	None.	None.				Do.		
Steamship lines using terminal	do.	do.				Do.		
Water supply	None for vessels.	None for vessels.				None for vessels.		
Fire protection	Hydrants, hose, and city service.	Plant apparatus.				City service.		
Electric current	None for vessels.	None for vessels.				None for vessels.		

Reference number on map / Name	4 City wharf			5 Waterworks wharf				6 Foundry wharf
Location on water front	Foot of High St., Burlington, N. J.			Above foot of York St., Burlington, N. J.				At East Burlington, N. J., opposite Burlington Island.
Owned by	City of Burlington			City of Burlington				United States Pipe & Foundry Co.
Operated by	do			do				Do.
Purpose for which used	Public wharf			Receipt of coal				Receipt of sand, iron ore, and fuel oil; shipment of iron pipe.
Type of Construction	Steel sheet pile bulkheads, solid fill			Steel sheet pile, timber, and stone bulkheads, solid fill.				Partly concrete retaining wall and partly timber crib, solid fill.
	Lower side	Upper side	Face or end	Lower side	Upper side	Face or end	Bulkhead wharf on lower side	Bulkhead wharf
Description:	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	
Dimensions	55	48	80	50	100	120	100	825+475+1,100 feet.
Depth of water, m. l. w.	5–12	0–12	12	0–11	0–11	11	0	20 feet.
Berthing space available	85	48	80	50	100	120	100	825+475+1,100 feet.
Width of apron	Open wharf			Open wharf				Open wharf.
Deck above m. l. w.	9 feet			9 feet				10 feet.
Capacity per square foot								6,000 pounds.
Lighted or unlighted	Lighted			Unlighted				Lighted.
Transit sheds on pier	None			None				None.
Mechanical handling facilities	do			do				3 electric traveling bridge cranes, each with 45-foot overhang over edge of wharf, single lift capacity 5 tons; lifting magnets; 1 steam locomotive crane, 35-foot reach, capacity 15 tons at 10-foot radius and 3½ tons at 35-foot radius; 3 6-inch pipe lines.
Railway connections	do			do				Plant trackage connects with Pennsylvania R. R.; 2 surface tracks along edge of wharf, total length 4,500 feet.
Steamship lines using terminal	do			do				None.
Water supply	None for vessels			None for vessels				None for vessels.
Fire protection	City service			City service				Pumps, hydrants, hose, and city service.
Electric current	None for vessels			None for vessels				None for vessels.

88468—39——7

Piers, wharves, and docks (except dry docks)—Continued

Reference number on map / Name	7 Standard Oil Co. wharf				8 Canal Co. wharf			9 Public wharf		
Location on water front	At East Burlington, N. J., opposite upper end of Burlington Island.				Below foot of Mill St., Bristol, Pa.			Foot of Mill St., Bristol, Pa.		
Owned by	Standard Oil Co. of N. J.				The Delaware Division Canal Co. of Pennsylvania.			Borough of Bristol, Pa.		
Operated by	do				do			Do.		
Purpose for which used	Receipt of petroleum products				Storage of contractors' equipment			Public wharf.		
Type of construction	Open pile wharf.				Timber bulkheads, solid fill			Timber, crib, solid fill, concrete cap.		
	Lower side	Upper side	Face or end	Approach	Lower side	Upper side	Face or end	Lower side	Upper side	Face or end
Description:	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*
Dimensions	17	17	35	135 x 7	70	70	120	90	67	38
Depth of water, m. l. w.			17		0–12	0–12	12	0–6	0–6	6
Berthing space available			200 with dolphins				120	90	67	38
Width of apron	Open wharf.				Open wharf.			Open wharf.		
Deck above m. l. w.	10 feet.				8 feet.			8 feet.		
Lighted or unlighted	Lighted.				Unlighted.			Lighted.		
Transit sheds on pier	None.				None.			None.		
Mechanical handling facilities	5 6-inch pipe lines extend to storage tanks in rear.				do.			Do.		
Railway connections	None.				do.			Do.		
Steamship lines using terminal	do.				do.			Do.		
Water supply	None for vessels.				None for vessels.			None for vessels.		
Fire protection	Plant apparatus and city service.				Borough service.			Borough service.		
Electric current	None for vessels.				None for vessels.			None for vessels.		

Reference number on map	10	11	12		
Name	Manhattan Soap Co. wharf	Superior Zinc Corporation wharf	Fleetwings wharf		
Location on water front	Foot of Fillmore St., Bristol, Pa.	Foot of Monroe St., Bristol, Pa.	Foot of Bloomsdale Rd., Bristol, Pa.		
Owned by	Manhattan Soap Co.	Superior Zinc Corporation	Fleetwings, Inc.		
Operated by	do	do	Philadelphia Shipbuilding Co.		
Purpose for which used	Not used	Receipt of fuel oil	In connection with proposed shipbuilding plant.		
Type of construction	Open pile wharf, timber deck	Open pile wharf, timber deck	Open pile wharf, timber deck.		
	Lower side / Face	Upper side / Face	Lower side / Upper side / Face or end		
Description:					
Dimensions	*Feet* 75 / *Feet* 800	*Feet* 136 / *Feet* 323	*Feet* 30+29+90 / *Feet* 140 / *Feet* 450		
Depth of water, m. l. w.	---- / 14	---- / 15	---- / ---- / 7		
Berthing space available	---- / 800	---- / 323	---- / ---- / 450		
Width of apron	Open wharf	Open wharf	Open wharf.		
Deck above m. l. w.	12 feet	12 feet	12 feet.		
Lighted or unlighted	Unlighted	Unlighted	Unlighted.		
Transit sheds on pier	None	None	None.		
Mechanical handling facilities	do	1 4-inch pipe line extends to storage tank in rear.	Do.		
Railway connections	do	Plant trackage connects with Pennsylvania R. R.; 1 300-foot surface track in rear of wharf.	Do.		
Steamship lines using terminal	do	None	Do.		
Water supply	None for vessels	None for vessels	None for vessels.		
Fire protection	Borough service	Borough service	Borough service.		
Electric current	None for vessels	None for vessels	None for vessels.		
Remarks			The Philadelphia Shipbuilding Co. has recently acquired the water front property and plant facilities are not yet installed.		

Piers, wharves, and docks (except dry docks)—Continued

Reference number on map	13		14				15
Name	Pipe foundry wharf		McElven & Son wharf				Roebling wharf
Location on water front	Foot of Foundry St., Florence, N. J		Foot of Broad St., Florence, N. J				At Roebling, N. J.
Owned by	Florence Pipe Foundry & Machine Co		McElven & Son, Inc				John A. Roebling's Sons Co.
Operated by	do		do				Do.
Purpose for which used	Receipt of pig iron, scrap metal, coal, etc.; shipment of foundry products.		Receipt of petroleum products				Receipt of pig iron and fuel oil.
Type of construction	Partly timber crib and partly steel sheet piling, solid fill.		Open pile pier and timber bulkhead, solid fill				Timber bulkhead, solid fill.
	Upper side	Face	Lower side	Upper side	Face or end	Bulkhead wharf	Bulkhead wharf
Description:	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*	
Dimensions	100	1,000	35	50	10	100	348 feet.
Depth of water, m. l. w	0–12	12			18	11	12 feet.
Berthing space available		850			90 with dolphins.	100	348 feet.
Width of apron	Open wharf		Open wharf				Open wharf.
Deck above m. l. w	12 feet		12 feet				9 feet.
Capacity per square foot	4,000 pounds						2,000 pounds.
Lighted or unlighted	Lighted		Lighted				Lighted.
Transit sheds on pier	None		None				None.
Mechanical handling facilities	1 electric traveling bridge crane, 15-foot overhang over edge of wharf, single lift capacity 10 tons; 3 steam locomotive cranes, each with 50-foot reach, capacities 21 tons at 15-foot radii and 5 tons at 50-foot radius; lifting magnets.		1 4-inch pipe line connects with 2 3-inch and 3 4-inch lines on shore.				1 electric locomotive crane, 45-foot reach, capacity 4½ tons at 35-foot radius and 13½ tons at 15-foot radius; lifting magnets; 1 6-inch pipe line extends to fuel oil storage.
Railway connections	Plant trackage connects with Pennsylvania R. R.; 2 surface tracks on open wharf, total length 1,750 feet.		None				Plant trackage connects with Pennsylvania R. R.; 2 surface tracks on open wharf, total length 696 feet.
Steamship lines using terminal	None		do				None.
Water supply	None for vessels		None for vessels				None for vessels.
Fire protection	Hydrants and hose		Portable extinguishers				Plant apparatus.
Electric current	None for vessels		None for vessels				None for vessels.

Reference number on map Name	16 Delaware River sand wharf	17 Fieldsboro wharf	18 Duck Island oil wharf			
Location on water front	Opposite upper end of Newbold Island, Fieldsboro, N. J.	Foot of Washington St., Fieldsboro, N. J	1¾ miles below Trenton Marine Terminal.			
Owned by	Delaware River Sand Dredging Co	Delaware River Sand Dredging Co	Atlantic Refining Co.; Servusoil Co.; Shell Union Oil Corporation; Sun Oil Co.			
Operated by	do	do	Do.			
Purpose for which used	Receipt of sand, gravel, and broken stone	Used occasionally for the receipt of fertilizer	Receipt of petroleum products.			
Type of construction	Timber bulkhead, solid fill	Timber bulkhead, solid fill	Steel sheet pile bulkheads, solid fill; timber trestle approach.			
	Bulkhead wharf	Bulkhead wharf	Lower side	Upper side	Face or end	Approach
Description:			*Feet*	*Feet*	*Feet*	*Feet*
Dimensions	230 feet	300 feet	80	80	30	140 x 10.
Depth of water, m. l. w	5 feet	7 feet	3	3	12	
Berthing space available	230 feet	300 feet	80	80	230 with dolphins	
Width of apron	Open wharf	Open wharf	Open wharf.			
Deck above m. l. w	10 feet	10 feet	10 feet.			
Lighted or unlighted	Lighted	Unlighted	Lighted.			
Transit sheds on pier	None	None	None.			
Mechanical handling facilities	Three 5-ton tractor cranes, each with 50-foot reach.	do	5 4-inch and 11 6-inch pipe lines extend to storage tanks of the several oil companies using the wharf.			
Railway connections	None	Pennsylvania R. R.; 1 300-foot surface track siding, 50 feet in rear of bulkhead.	None.			
Steamship lines using terminal	do	None	Do.			
Water supply	None for vessels	None for vessels	None for vessels.			
Fire protection	None	None	Foamite extinguishers.			
Electric current	None for vessels	None for vessels	None for vessels.			

Piers, wharves, and docks (except dry docks)—Continued

Reference number on map / Name	19 Trenton Marine Terminal				20 Trenton municipal wharf No. 2			21 Trenton municipal wharf No. 1		
Location on water front	1¼ miles below the head of navigation at the Pennsylvania R. R. bridge.				Below foot of Ferry St.			Foot of Ferry St.		
Owned by	City of Trenton.				City of Trenton.			City of Trenton.		
Operated by	do.				Pure Oil Co.			Do.		
Purpose for which used	Handling of general cargo in foreign and domestic trade.				Receipt of petroleum products.			Public wharf.		
Type of construction	Concrete retaining wall, solid fill, with concrete deck on two-thirds of its length.				Concrete retaining wall, solid fill.			Concrete retaining wall, solid fill.		
	Bulkhead wharf				Lower side	Upper side	Face or end	Lower side	Face or end	Bulkhead wharf
Description:										
Dimensions	1,200 feet.				*Feet* 30	*Feet* 250	*Feet* 75	*Feet* 250	*Feet* 300+35	*Feet* 200
Depth of water, m. l. w.	25 feet.				0–12	2–12	12	12	12	12
Berthing space available	1,200 feet.				0	250	75	250	300+35	200
Width of apron	40 feet at pier shed.				Open wharf.			Open wharf.		
Deck above m. l. w.	14 feet.				12 feet.			12 feet.		
Capacity per square foot	Unlimited.				500 pounds.			500 pounds.		
Lighted or unlighted	Lighted.				Unlighted.			Lighted.		
Transit sheds on pier:	No. 1	No. 2	No. 3	No. 4	None.			None.		
Type of construction	Steel frame, metal covered.		Timber frame, metal covered.							
Length and width, feet	300 x 100	243 x 60	101 x 61	101 x 61						
Total floor area, square feet	30,000	14,580	6,161	6,161						
Number of floors	1	1	1	1						
Height between floors, feet	20	18	30	30						
Allowable floor load per square foot.	Unlimited.									
Lighted or unlighted	Lighted.									
Mechanical handling facilities	2 steam traveling revolving gantry cranes, each with 40-foot reach, capacities 25 tons at 15-foot radius; 1 tractor crane, 10-foot reach, capacity 2 tons; 1 tractor crane, 30-foot reach, capacity 12 tons at 12-foot radius; 4 lumber carriers; truck; platform scales; cargo beams on shed No. 1; 6 steel cargo masts.				1 3-inch and 3 4-inch pipe lines extend to storage tanks on wharf.			Do.		

Railway connections	Pennsylvania R. R.; 2 surface tracks on open wharf, total length 2,400 feet; 1 300-foot depressed track in rear of shed No. 1; 1 243-foot surface track in rear of shed No. 2.	None	Do.
Steamship lines using terminal	Pacific Coast Direct Line; Quaker Line; McCormick Steamship Co.; Bristol City Line; North German Lloyd.	do	Do.
Water supply	Available to vessels at 20 cents per 100 cubic feet, minimum charge $1.	None for vessels	None for vessels.
Fire protection	Hydrants, automatic dry sprinkler in shed No. 1, and city service.	City service	City service.
Electric current	Available to vessels for lighting at $1 per light per night. Current, A. C., 110–220 volts, 3-phase, 60-cycle, at 10 cents per kilowatt-hour.	None for vessels	None for vessels.
Remarks	Sheds Nos. 3 and 4 are for lumber storage and are situated 250 feet in rear of wharf.		

HOISTING FACILITIES

A number of terminals at the ports on the Delaware River above Philadelphia are equipped with facilities for heavy lifting. Most of this equipment is employed in handling material and products at industrial plants, and is not available for public use, but two traveling gantry cranes of 25 tons capacity are available to the public at the Trenton Marine Terminal.

The following table shows the details of hoisting facilities of over 5 tons capacity at the ports above Philadelphia.

Hoisting facilities ashore

Pier or wharf on which located		Cranes, derricks, etc.								Railroad connection	Charge for use	Remarks
						Lifting capacity		Berthing space available				
Reference No. on map	(a) Name (b) Operator and address	Location	Available to public	Number and kind	Power used	Tons	Reach (feet)	Length (feet)	Depth m. l. w.			
1	(a) Kieckhefer Container Co. wharf. (b) Kieckhefer Container Co., Delair, N. J.	Delair, N. J., below Pennsylvania R. R. bridge.	No	1 traveling revolving crane.	Gasoline	5	50	414	13	None		
6	(a) Foundry wharf (b) United States Pipe & Foundry Co., East Burlington, N. J.	East Burlington, N.J., opposite Burlington Island	No	3 traveling bridge cranes.	Electric	5	45	1,300	20	Pennsylvania R. R.		Lifting magnets are available.
				1 locomotive crane	Steam	15	10					
						3½	35					
13	(a) Pipe foundry wharf (b) Florence Pipe Foundry & Machine Co., Florence, N. J.	Florence, N. J., foot of Foundry St.	No	1 traveling bridge crane.	Electric	10	15	850	12	do		Do.
				3 locomotive cranes	Steam	21	15					
						5	50					
15	(a) Roebling wharf (b) John A. Roebling's Sons Co., Roebling, N. J.	Roebling, N. J., 8½ miles below Trenton, N. J.	No	1 locomotive crane	Electric	13½	15	348	12	do		Do.
						4½	35					
16	(a) Delaware River sand wharf (b) Delaware River Sand Dredging Co., Fieldsboro, N. J.	Fieldsboro, N. J., opsite upper end of Newbold Island.	No	3 tractor cranes	Gasoline	[1] 5	50	230	5	None		
19	(a) Trenton Marine Terminal (b) City of Trenton, Trenton, N. J.	Trenton, N. J., 1¼ miles below Pennsylvania R. R. bridge.	Yes	2 traveling revolving gantry cranes.	Steam	25	15	1,200	25	Pennsylvania R. R.	Fitted with hook, $4 per hour; with clamshell bucket, $4.50 per hour; minimum, $8.	It is planned to install 1 44-inch and 2 60-inch lifting magnets.
							40					
				1 tractor crane	Gasoline	12	12				Fitted with hook, $4 per hour, with clamshell bucket, $4.25 per hour. Operators are included in above charges.	
							30					
				1 tractor crane	do	2	10					

[1] Maximum.

GRAIN ELEVATORS

There are no grain elevators at ports on the Delaware River above Philadelphia. The Pennsylvania Railroad and the Reading Co. each operate a grain elevator at Philadelphia, both of which are described in Port Series No. 4, the Ports of Philadelphia, Pa., Camden and Gloucester, N. J.

WRECKING AND SALVAGE FACILITIES

Wrecking and salvage facilities are available at Philadelphia and are discussed in Port Series No. 4, the ports of Philadelphia, Pa., Camden and Gloucester, N. J.

RADIO AND WIRELESS

Radio communication facilities are available at Philadelphia and are discussed in Port Series No. 4, the Ports of Philadelphia, Pa., Camden and Gloucester, N. J.

RAILROAD SERVICES

RAILROADS

The ports on the Delaware River above Philadelphia are served solely by the Pennsylvania Railroad with the exception of Trenton, N. J., which is served also by the Reading Railway System. A description of these railroads is given on page 41.

CAR DEMURRAGE

The general provisions regarding car demurrage are shown on page 42.

DIVERSION AND RECONSIGNMENT

The general provisions regarding diversion and reconsignment are shown on page 42.

COMMERCE OF THE DELAWARE RIVER FROM PHILADELPHIA, PA., TO TRENTON, N. J.

During the decade 1927–36, inclusive, the traffic on this section of the Delaware River averaged 4,110,040 short tons. The average for the first 5 years was 5,227,672 tons and during the last 5 years of the decade it was 2,992,409 tons, a large part of the difference being caused by the decrease in the internal shipments and local and intraport traffic of sand and gravel.

While the existing project for a 28-foot channel from Allegheny Avenue, Philadelphia, to the Delair Bridge of the Pennsylvania Railroad Company and the 25-foot channel to Trenton, N. J., was adopted in 1930, the project was not completed until 1937. Imports and exports, largely at Trenton, began in 1932. Traffic in sand and gravel accounted for an average of 2,578,441 tons, or nearly 50 percent of the entire traffic during the decade; coal averaged 971,548 tons, or 23 percent; petroleum products, 313,803 tons, or 7.6 percent; and iron and steel products, lumber, and coal tar were other items of importance.

IMPORTS

Imports averaged 9,999 tons during the 10-year period, as shown in the table and graph, but since imports began in 1932, the average since that year has been 19,998 tons. During these 5 years the tonnage increased from 7,568 to 38,112 tons. China clay, imported by the potteries and plumbing fixture concerns at Trenton, averaged 6,256 tons, and other clays averaged 1,839 tons; lumber, laths, and shingles averaged 4,858 tons, including a peak of 19,553 tons in 1936; muriate of potash averaged 4,125 tons; flint, 1,874 tons; and cornwall stone, 762 tons.

EXPORTS

Exports also began in 1932 and averaged 18,856 tons during the 5-year period 1932–36. Coal-tar averaged 15,724 tons, or 83.4 percent of the total exports; iron and steel scrap averaged 1,484 tons, or 7.9 percent; and other items, aggregating 8.7 percent, consisted of coal-tar pitch, ammonium sulphate, and dried fruit.

COASTWISE RECEIPTS

Coastwise receipts consisted largely of coal which averaged 495,160 tons during the 10-year period 1927–36, or 79.2 percent of the total coastwise receipts. Pig iron averaged 72,192 tons, or 11.5 percent;

lumber, lath, and shingles, 32,803 tons, or 5.2 percent; iron and steel scrap, 15,481 tons, or 2.5 percent; and miscellaneous commodities in small amounts accounted for the remaining 1.6 percent.

COASTWISE SHIPMENTS

Coastwise shipments averaged 47,314 tons during the decade and represented but 1.2 percent of the total traffic. Coke averaged 27,368 tons, or 57.9 percent; coal tar, 7,671 tons, or 16.2 percent; pipe and fittings, 7,565 tons, or 16 percent; wire, wire rope, and manufactures of wire averaged 2,184 tons, or 4.6 percent; and other commodities, including sand and gravel, ammonium sulphate, and paper and paper manufactures made up a large part of the remaining 5.3 percent.

INTERNAL RECEIPTS

Receipts at localities on the upper Delaware River originating at Philadelphia and points below Philadelphia as well as receipts from localities reached via the Chesapeake and Delaware Canal averaged 822,960 tons during the decade under discussion and represented 20 percent of the entire traffic. Coal led with an average of 425,177 tons and accounted for 51.7 percent of the internal receipts. Petroleum products averaged 262,118 tons, or 31.9 percent of the total, and consisted largely of fuel and gas oil, averaging 196,593 tons; gasoline, 61,687 tons; lubricating oil, 1,682 tons; and kerosene, 1,613 tons. Sand and gravel averaged 64,500 tons, or 7.8 percent; pig iron and scrap, 43,968, or 5.3 percent; and wood pulp, fertilizer materials, lumber, copper, and salt hay accounted for most of the remaining 27,197 tons, or 3.3 percent of the total imports.

INTERNAL SHIPMENTS

Shipments to Philadelphia and points below Philadelphia as well as to points reached via the Chesapeake and Delaware Canal averaged 2,129,095 tons, or 51.8 percent of the entire traffic on the upper Delaware River. Sand and gravel accounted for an average of 2,052,722 tons, or 96.4 percent of the entire shipments; coal tar, 37,793 tons, or 1.8 percent; and pipe and pipe fittings, crushed stone, and petroleum products made up the remaining 1.8 percent.

LOCAL AND INTRAPORT TRAFFIC

Local traffic on the upper Delaware River and certain traffic had with Philadelphia averaged 465,814 tons and represented 11.4 percent of the traffic of the upper Delaware River. Sand and gravel accounted for almost the entire amount, or 98.9 percent.

Water-borne commerce on Delaware River from Philadelphia, Pa., to Trenton, N. J., 1927–36

[Quantities expressed in short tons]

Commodity	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
IMPORTS										
Wood and paper:										
Lumber, laths, and shingles						3,273			1,464	19,553
Logs and poles										454
Wood pulp						305				
All other								6		
Nonmetallic minerals:										
Clay, china						1,740	3,807	3,319	12,257	10,157
Clays, other							2,323	1,172	1,516	4,184
Flint							1,788	1,631	3,932	2,016
Stone, cornwall						902	507		654	1,748
Chemicals:										
Manure salts						150		502		
Muriate of potash						1,198	5,114	7,749	6,564	
Total, imports						7,568	13,539	14,379	26,387	38,112
EXPORTS										
Vegetable food products: Dried fruit										14
Ores, metals and manufactures of: Iron and steel scrap								3,002	2,294	2,127
Chemicals:										
Aluminum sulphate								1,120	1,000	500
Coal tar, crude						26,833	35,096	16,692		
Coal tar, pitch								5,600		
Total, exports						26,833	35,096	26,414	3,294	2,641
COASTWISE RECEIPTS										
Vegetable food products:										
Grain and flour							1,500	45		
All other									37	
Vegetable products, inedible:										
Rosin									712	
All other							75			
Wood and paper:										
Cork waste								710		
Firewood									35	
Lumber, laths, and shingles	4,778	816	4,359	16,181	16,376	28,997	75,811	26,583	70,955	83,169
Paper and manufactures of	450					33	45			
Paper, waste					877					

Water-borne commerce on Delaware River from Philadelphia, Pa., to Trenton, N. J., 1927–36—Continued

[Quantities expressed in short tons]

Commodity	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
COASTWISE RECEIPTS—continued										
Wood and paper—Continued										
Plywood								26	45	33
Poles								112		
Pulpwood	27,952	21,253								
Railroad ties and mine props			1,393	1,124						
Wood pulp						560			115	1,255
Wood manufactures							124	35		
Nonmetallic minerals:										
Asbestos, unmanufactured								100		
Coal		14,854	501,986	699,314	726,612	601,271	631,204	689,196	624,855	459,307
Earthenware products								104		
Infusorial earth									75	
Petroleum products:										
Fuel and gas oil					1,616	1,939	9,091	808		
Gasoline				641	10,272	641		1,760	3,150	
Kerosene									205	
Stones and paving blocks		984								
Ores, metals, and manufactures of:										
Iron ore				1,500	1,500					
Iron and steel:										
Pig iron	118,592	90,257	105,270	118,932	102,752	7,421	42,625	48,933	21,803	65,333
Pipe					559					
Scrap					11,256	21,207	30,310	26,021	19,821	46,198
Structural steel								196		73
Wire and wire rope								403		664
All other							414			
Machinery and vehicles										9
Chemicals: Fertilizer materials				1,008					519	
Unclassified:										
Containers, empty								8		6
Miscellaneous							917	231	18	
Total, coastwise receipts	151,772	128,164	616,008	838,700	871,811	662,069	792,116	795,271	742,345	656,047
COASTWISE SHIPMENTS										
Animals and animal products: Leather and tanned skins								22		
Vegetable food products: Potatoes						224				
Vegetable products, inedible: Rubber manufactures								76	74	15

Textiles:										
Cotton manufactures								11	5	
Fibers, vegetable									12	
Linoleum									32	58
Wood and paper:										
Lumber					239					
Paper and manufactures of	4,203								22	14
Nonmetallic minerals:										
Asbestos paper and manufactures								26		40
Cinders, common										1,100
Clay, fire								47		
Coke					21,591	2,414	79,840	97,174	71,010	1,655
Earthenware products								174	473	315
Feldspar									56	
Firebrick								24	495	162
Petroleum products:										
Fuel and gas oil						604				
Lubricating oil						15			14	
Other									109	
Sand and gravel			3,496	1,634	376					
Stone, cornwall								34		
All other								25		12
Ores, metals and manufactures of:										
Copper, manufactures of									852	
Copper wire and cable								54		108
Iron and steel:										
Advanced manufactures of							140		249	115
Pipe, tubing, and fittings	14,750	12,271	9,355	6,153	7,285	10,426	5,469	6,847	892	2,198
Scrap									138	
Structural steel									1,390	
Wire, rope and manufactures of								615	20,393	836
Zinc dross										40
Machinery and vehicles:										
Automobiles and parts									7	560
Machinery and parts									623	200
All other								8	19	
Chemicals:										
Ammonium sulphate					1,722	1,408		1,250		
Ammunition		650	132							
Coal tar, crude							3,988	15,025	26,228	31,467
Mineral earth pigments									127	
All other								59		
Unclassified: General merchandise						25	25	206	811	103
Total, coastwise shipments	18,953	12,921	12,983	7,787	31,213	15,116	89,462	121,677	124,031	38,998
INTERNAL RECEIPTS										
Vegetable products, inedible:										
Logwood					154					
Salt hay	3,096	2,542		2,268	1,389	587	65	974	775	725

Water-borne commerce on Delaware River from Philadelphia, Pa., to Trenton, N. J., 1927–36—Continued

[Quantities expressed in short tons]

Commodity	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
INTERNAL RECEIPTS—continued										
Wood and paper:										
Firewood								224	68	
Logs, piles, and poles							1,140	3,331	1,814	2,398
Lumber					1,227	1,446	5,019	7,111	9,744	12,357
Railroad ties								330	432	
Wood pulp		10,373		14,281	1,601	3,162	10,883	14,479	9,162	3,417
Nonmetallic minerals:										
Asbestos materials	2,500									
Coal, anthracite					39,549	27,830	46,570	22,446	28,019	207,759
Coal, bituminous					332,465	293,278	301,177	346,197	421,712	678,103
Coal, unspecified	389,542	331,825	362,175	373,122						
Pebbles, flint	5,305	3,401								
Petroleum and products:										
Asphaltum	1,980									
Crude oil					343			3,088		
Fuel and gas oil	221,739	202,657	221,980	125,964	161,247	153,022	162,564	194,224	212,357	310,178
Gasoline	11,522	18,937	39,087	63,162	57,197	87,585	83,142	85,193	85,615	85,427
Kerosene	25	72	425	199	202	1,194	2,460	2,527	3,897	5,125
Lubricating oil		865	1,074	1,008	1,420	1,136	695	1,694	3,869	60
Other		85	175	178	298	163	923	52	105	27
Sand and gravel			244,000	114,000	76,000	42,250	4,540	164,209		
Stone, crushed	486	8,581								
Sulphur	8,943	980								
Ores, metals and manufactures of:										
Bauxite ore	520	905								
Copper	6,400	4,839								
Iron ore			410							
Iron, bars and sheets	2,400									
Pig iron	54,025	62,749	25,848	29,345	561	82,664	52,329	46,520	28,594	35,163
Iron and steel scrap					1,385	2,612	3,148		4,330	10,409
Tin cans						4	8		20	
All other									1,621	
Machinery and vehicles										15
Chemicals:										
Coal tar, crude							2,439			
Ethyl fluid										3,369
Fertilizer						2,933	5,971	5,272	6,114	7,841
Fertilizer materials:										
Nitrates	555	611						100	190	
Phosphates						200	405			607
Sulphuric acid				3,688	7,657	7,208	5,213	2,180	3,675	3,192
All other		932								410
Unclassified: General merchandise	1,350	7,454	6,930	4,989	4,390	40	75			92
Total, internal receipts	710,388	657,808	902,104	732,204	737,085	707,314	688,766	900,151	827,113	1,366,674

INTERNAL SHIPMENTS										
Vegetable food products:										
Molasses								34		159
Sugar, refined								80		
Tomatoes, fresh									399	1,002
Textiles: Wool			100	75						
Wood and paper: Lumber								568	795	
Nonmetallic minerals:										
Coal	13,634	2,592	3,681	1,794	1,393	1,282		1,670		
Coke			17,276		1,131	20,550	33,097	32,177	31,463	36,416
Petroleum products:										
Fuel and gas oil	36	671	87	34	26	318	3,999	2,460	1,936	4,548
Gasoline		210		196	470	422	1,081	66	422	817
Lubricating oil			1			22	98	7	1,054	60
Naphtha					165					
Other		28			1,550	13		13	10	
Sand and gravel	4,428,289	3,587,122	3,050,845	3,246,013	2,126,434	991,568	670,442	723,485	688,729	1,014,292
Stone, crushed						21,224	21,046	18,139		
Ores, metals and manufactures of:										
Iron and steel:										
Pig iron						1,517				
Pipe and fittings		2,302			21,199	15,419	10,356	8,453	4,412	5,380
Rope, wire			3,000	2,500						
Scrap							260			
Chemicals:										
Coal tar	36,085	40,196	43,611	59,751	42,140	46,546	30,832	21,606	22,066	35,097
Creosote									6	
Fertilizer							4,254		100	90
Fertilizer materials:										
Ammonium sulphate						500	1,137			
Bone ash and meal									164	363
All other			500	500						
Unclassified: General merchandise	4,108	6,232	3,894	2,327	4,036	200				
Total, internal shipments	4,482,152	3,639,353	3,122,995	3,313,190	2,198,544	1,099,581	776,602	808,758	751,556	1,098,224
LOCAL AND INTRAPORT TRAFFIC										
Nonmetallic minerals:										
Coal	8,668	9,168	9,987	7,980	4,096	372				
Sand and gravel	361,957	616,356	677,534	628,101	623,347	490,294	311,803	150,065	306,102	441,127
Soil			2,457							
Stone									6,000	
Ores, metals and manufactures of:										
Iron and steel scrap										89
Iron and steel pipe and tubing								48		
Machinery and vehicles: Machinery								12		
Chemicals: Coal tar					2,562					
Unclassified: General merchandise		6	5							
Total, local and intraport traffic	370,625	625,530	689,983	636,081	630,005	490,666	311,803	150,125	312,102	441,216

Summary of water-borne commerce on Delaware River from Philadelphia, Pa., to Trenton, N. J., 1927–36

[Quantities expressed in short tons]

Year	Foreign			Domestic						Grand total
	Imports	Exports	Total	Coastwise		Internal		Local and intraport	Total	
				Receipts	Shipments	Receipts	Shipments			
1927				151,772	18,953	710,388	4,482,152	370,625	5,733,890	5,733,890
1928				128,164	12,921	657,808	3,639,353	625,530	5,063,776	5,063,776
1929				616,908	12,983	902,104	3,122,995	689,983	5,344,073	5,344,073
1930				838,700	7,787	732,204	3,313,190	636,081	5,527,962	5,527,962
1931				871,811	31,213	737,085	2,198,544	630,005	4,468,658	4,468,658
1932	7,568	26,833	34,401	662,069	15,116	707,314	1,099,581	490,666	2,974,746	3,009,147
1933	13,539	35,096	48,635	792,116	89,462	688,766	776,602	311,803	2,658,749	2,707,384
1934	14,379	26,414	40,793	795,271	121,677	900,151	808,758	150,125	2,775,982	2,816,775
1935	26,387	3,291	29,681	742,345	124,031	827,113	751,556	312,102	2,757,147	2,786,828
1936	38,112	2,641	40,753	656,047	38,998	1,366,674	1,098,224	441,216	3,601,159	3,641,912
Average	9,999	9,428	19,427	625,430	47,314	822,960	2,129,095	465,814	4,090,613	4,110,040

Water-borne commerce of localities on Delaware River between Philadelphia, Pa., and Trenton, N. J., 1932–37

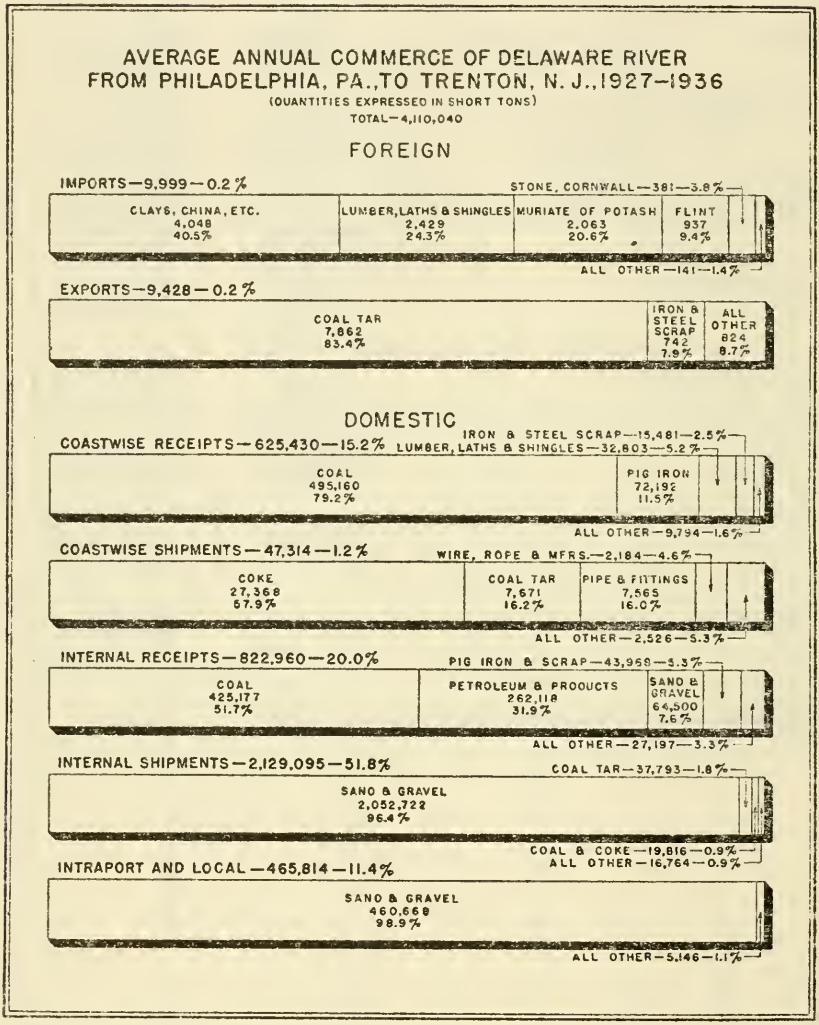
[Quantities expressed in short tons]

Delaware River at—	Year	Foreign			Domestic						Grand total
		Imports	Exports	Total	Coastwise		Internal		Local and intra-port	Total	
					Receipts	Shipments	Receipts	Shipments			
Trenton, N. J	1932	3,990		3,990	641	224	76,284	89,598		166,747	170,737
	1933	13,539		13,539	15,289		66,354	1,026		82,669	96,208
	1934	14,373	3,002	17,375	22,072	1,381	55,620	5,010	11,060	95,143	112,518
	1935	24,923	2,294	27,217	17,771	26,163	83,902	3,634	6,000	137,470	164,687
	1936	18,105	2,141	20,246	7,666	2,486	106,459	1,851	33,371	151,773	172,019
	1937	31,906	7,877	39,783	10,135	3,246	135,027	1,078	292,643	442,129	481,912

Bordentown, N. J., and vicinity	1932						648		3,395	4,043	4,043
	1933						380		683	1,063	1,063
	1934						188			188	188
	1935						603		82,381	82,984	82,984
	1936						67			67	67
	1937										
Burlington, Florence, and Roebling, N. J	1932				30,567	11,030	140,723	17,327		199,647	199,647
	1933				81,594	5,469	134,351	10,912		232,326	232,326
	1934				74,954	6,847	177,628	8,833	4,560	272,822	272,822
	1935				43,595	616	192,470	5,018		241,699	241,699
	1936				110,337	2,198	229,120	6,484		348,139	348,139
	1937				50,326	3,978	157,443	8,793		220,540	220,540
Bristol, Pa., and vicinity	1932						2,233	640,276	137,833	780,342	780,342
	1933						4,844	638,442	46,019	689,305	689,305
	1934						8,381	668,151	16,587	693,119	693,119
	1935						5,283	664,969	73,962	744,214	744,214
	1936						15,000	984,989		999,989	999,989
	1937						5,395	1,062,843	119,511	1,187,749	1,187,749
Palmyra, Riverton, Riverside, and Beverly, N. J., including Rancocas River.	1932						9,091	186,778	349,438	545,307	545,307
	1933						8,058	30,978	265,101	304,137	304,137
	1934						10,634	16,781	117,918	145,333	145,333
	1935						8,414	15,298	98,757	122,469	122,469
	1936						9,106	28,903	80,151	118,160	118,160
	1937						7,046	36,524	89,735	133,305	133,305
Delair, N. J	1932						23,782			23,782	23,782
	1933						47,865			47,865	47,865
	1934						26,585			26,585	26,585
	1935						32,932			32,932	32,932
	1936						35,251			35,251	35,251
	1937						40,907			40,907	40,907
Upper Philadelphia Harbor, Allegheny Ave. to Poquessing Creek.	1932	3,578	26,833	30,411	630,861	3,862	454,553	165,602		1,254,878	1,285,289
	1933		35,096	35,096	695,233	83,993	426,914	95,244		1,301,384	1,336,480
	1934	6	23,412	23,418	698,245	113,449	621,115	109,083		1,542,792	1,566,210
	1935	1,464	1,000	2,464	680,979	97,252	503,509	62,637	51,002	1,395,379	1,397,843
	1936	20,007	500	20,507	538,104	34,314	971,671	75,997	327,694	1,947,780	1,968,287
	1937	5,897	5,214	11,111	507,695	67,677	1,071,986	57,023	334,581	2,038,962	2,050,073

SUMMARY

Delaware River, Allegheny Ave., Philadelphia, Pa., to Trenton, N. J.	1932	7,568	26,833	34,401	662,069	15,116	707,314	1,099,581	490,666	2,974,746	3,009,147
	1933	13,539	35,096	48,635	792,116	89,462	688,766	776,602	311,803	2,658,749	2,707,384
	1934	14,379	26,414	40,793	795,271	121,677	900,151	808,758	150,125	2,775,982	2,816,775
	1935	26,387	3,294	29,681	742,345	124,031	827,113	751,556	312,102	2,757,147	2,786,828
	1936	38,112	2,641	40,753	656,047	38,998	1,366,674	1,098,224	441,216	3,601,159	3,641,912
	1937	37,803	13,091	50,894	568,156	74,901	1,417,804	1,166,261	836,470	4,063,592	4,114,486
Average, 1932–37		22,964	17,895	40,859	702,667	74,031	984,637	950,164	423,730	3,138,563	3,179,422


AVERAGE ANNUAL COMMERCE OF DELAWARE RIVER
FROM PHILADELPHIA, PA., TO TRENTON, N. J., 1927–1936
(QUANTITIES EXPRESSED IN SHORT TONS)
TOTAL—4,110,040
FOREIGN
IMPORTS—9,999—0.2%
CLAYS, CHINA, ETC. 4,048 40.5%
LUMBER, LATHS & SHINGLES 2,429 24.3%
MURIATE OF POTASH 2,063 20.6%
FLINT 937 9.4%
STONE, CORNWALL—381—3.8%
ALL OTHER—141—1.4%
EXPORTS—9,428—0.2%
COAL TAR 7,862 83.4%
IRON & STEEL SCRAP 742 7.9%
ALL OTHER 824 8.7%
DOMESTIC
COASTWISE RECEIPTS—625,430—15.2%
COAL 495,160 79.2%
IRON & STEEL SCRAP—15,481—2.5%
LUMBER, LATHS & SHINGLES—32,803—5.2%
PIG IRON 72,198 11.5%
ALL OTHER—9,794—1.6%
COASTWISE SHIPMENTS—47,314—1.2%
COKE 27,368 57.9%
COAL TAR 7,671 16.2%
WIRE, ROPE & MFRS.—2,184—4.6%
PIPE & FITTINGS 7,565 16.0%
ALL OTHER—2,526—5.3%
INTERNAL RECEIPTS—822,960—20.0%
COAL 425,177 51.7%
PETROLEUM & PRODUCTS 262,118 31.9%
PIG IRON & SCRAP—43,969—5.3%
SAND & GRAVEL 64,500 7.6%
ALL OTHER—27,197—3.3%
INTERNAL SHIPMENTS—2,129,095—51.8%
SAND & GRAVEL 2,052,722 96.4%
COAL TAR—37,793—1.8%
COAL & COKE—19,816—0.9%
ALL OTHER—16,764—0.9%
INTRAPORT AND LOCAL—465,814—11.4%
SAND & GRAVEL 460,668 98.9%
ALL OTHER—5,146—1.1%

GENERAL

The Delaware River is navigable as far as the Pennsylvania Railroad bridge at Ferry Street, Trenton, N. J., about 34 miles above Chestnut Street, Philadelphia, and about 135 miles from the Atlantic Ocean. The section of the river embraced in this report is the 29-mile stretch extending from Delair, N. J. to the head of navigation, in which is included the ports of Delair, Burlington, and East Burlington, N. J., Bristol, Pa., Florence, Roebling, Fieldsboro, and Trenton, N. J. The channel serving this river area is 28 feet deep at mean low water up to the Delair bridge of the Pennsylvania Railroad, thence 25 feet deep to the upper end of the marine terminal in the lower part of the city of Trenton, and thence 12 feet deep to the head of navigation. An auxiliary channel of 20 feet depth extends from the main channel off Burlington along the east side of Burlington Island to the upper end of the plant of the U. S. Pipe & Foundry Co. at East Burlington. There is one bridge crossing, the highway toll bridge extending between Burlington, N. J. and Bristol, Pa. It is of the vertical lift type, with a vertical clearance of 135 feet above mean high water with the span raised, and 62.3 feet with the span down.

This section of the river is noted for the extensive industries located on its banks, including two iron-pipe foundries and a wire cable plant, as well as the various industries in the city of Trenton, which, though not situated directly on the river, utilize river transportation in the receipt of raw materials and the shipment of finished products.

There are no fuel-oil bunkering facilities or marine repair plants on the upper Delaware River, but such facilities are available at Philadelphia and at points below that city.

The city of Trenton, although situated 135 miles from the ocean, is a seaport with regular steamship services in foreign, coastwise, and intercoastal trade. The Trenton Marine Terminal, operated by the city of Trenton, provides 1,200 feet of berthing space with a depth of 25 feet at mean low water, and is adequately equipped with transit sheds and cargo-handling facilities.

The total water-borne commerce at localities on the river above Philadelphia has averaged 4,110,040 tons in volume annually during the 10-year period 1927–36, of which 0.4 percent was in foreign trade, 16.4 percent in coastwise traffic, 71.8 percent was in internal traffic, and 11.4 percent was moved in intraport and local traffic. During the calendar year 1937, the volume of foreign traffic was 1.3 percent

of the whole, coastwise traffic was 15.6 percent, internal traffic 62.8 percent, and intraport and local traffic was 20.3 percent. The volume of traffic during 1937 was 4,114,486 tons, the highest annual volume since 1932, but not as high as in the years preceding. The greater volume of traffic in the upper Delaware River, prior to 1932, was due in a large measure to the operation of the Delaware and Raritan Canal which extended from Bordentown on the Delaware to New Brunswick on the Raritan River, and which was closed to navigation and abandoned in 1933.

The ports on the Delaware River above Philadelphia, with the exception of Trenton, are served only by the Pennsylvania Railroad. Trenton is served by both the Pennsylvania Railroad and the Reading Railway System.

DELAIR, N. J.

General description.—Delair, N. J., is situated on the east bank of Delaware River opposite the upper end of Philadelphia, about 5 miles above Chestnut Street, and about 29 miles below Trenton, N. J. It is served by the 28-foot river channel extending from Allegheny Avenue, Philadelphia, to the Delair bridge of the Pennsylvania Railroad.

Piers, wharves, and docks.—There is one terminal at Delair. It is a bulkhead wharf of steel-sheet-pile construction 414 feet long, providing 666 feet of berthing space with dolphins, and having a depth of 13 feet of water alongside at mean low water. The terminal is shown under reference No. 1 on the port facilities map and in the descriptive table on page 86.

Railroads.—Delair is served by the Pennsylvania Railroad, a description of which is given on page 41.

Switching.—Intraplant switching on road-haul traffic is assessed $2.70 per car and $3.15 per car on non-road-haul traffic. These charges apply on all individual cars loaded or empty, except as provided in connection with road-haul intrastate traffic, on which a rate of $1.35 per car applies. Complete information is contained in Pennsylvania Railroad tariff 1589, I. C. C. 691.

Commerce.—The water-borne commerce at Delair amounted to 40,907 short tons during the calendar year 1937, and consisted of receipts of wood pulp and coal. A total of 5,524 tons of wood pulp was received, all of which moved in internal traffic, and of which 96 percent was routed via the Chesapeake and Delaware Canal. Coal receipts amounted to 35,383 tons, or 86 percent of the total traffic.

A comparative statement showing the volume of commerce in the several classes of traffic at Delair during the 6-year period 1932–37 is presented on page 105.

BURLINGTON, N. J.

General description.—Burlington, N. J., is situated on the east bank of Delaware River, about 19 miles above Chestnut Street, Philadelphia, and about 15 miles below Trenton, N. J., partly fronting on the 25-foot river channel and partly on the 20-foot auxiliary channel extending along the east side of Burlington Island. It is connected with Bristol, Pa., on the opposite shore by a highway toll bridge, a description of which is given on page 79.

Piers, wharves, and docks.—There are four wharves at Burlington, with a total berthing space of 1,033 linear feet, having depths of water

alongside ranging up to 16 feet at mean low water. One of these wharves is owned and operated by the city of Burlington for public use and is open to all on equal terms. The wharves are shown under reference Nos. 2–5 on the port facilities map and in the descriptive table on page 86.

Railroads.—Burlington is served by the Pennsylvania Railroad, a description of which is given on page 41.

Switching.—For movement of all freight from industrial, private, or public sidings to industrial, private, or public sidings, a rate of $6.75 per car applies on road-haul traffic, and 50 cents per ton of 2,000 pounds; minimum charge $9.50 per car on non-road-haul traffic. The foregoing does not apply on traffic to or from water lines. Intra-plant switching is usually assessed $2.70 per car on road-haul and $3.15 per car on non-road-haul traffic, except in connection with road-haul intrastate traffic, on which a rate of $1.35 per car applies. Tariff authority, Pennsylvania Railroad 1589, I. C. C. 691.

Car demurrage.—The general provisions regarding car demurrage are shown on page 42.

Diversion and reconsignment.—The general provisions regarding diversion and reconsignment are shown on page 42.

Commerce.—Separate statistics of water-borne commerce at Burlington are not available since these data are included in a compilation comprising the combined figures of the commerce at Burlington, Florence, and Roebling, N. J.

The commerce of the above-named localities amounted to 220,540 short tons during the calendar year 1937, and was largely in-bound. The receipts, which comprised 94 percent of the commerce, consisted of petroleum products, iron pig and scrap, coal, salt hay, and fertilizer. Shipments were mainly iron and steel pipe and fittings. Twenty-five percent of the tonnage was moved in coastwise traffic, while 75 percent was in internal traffic.

A comparative statement showing the volume of commerce in the various classes of traffic at Burlington, Florence, and Roebling, N. J., during the 6-year period 1932–37 is presented on page 105, while details of the commerce during the calendar year 1937 are shown in the following table:

Water-borne commerce on Delaware River, at Burlington, Florence, and Roebling, N. J., calendar year 1937

[Quantities expressed in short tons]

COASTWISE RECEIPTS	
Ores, metals and manufactures of: Iron and steel, pig and scrap	50, 326
Total coastwise receipts	50, 326

INTERNAL RECEIPTS	
Vegetable products, inedible: Salt hay	533
Nonmetallic minerals:	
Coal, anthracite	871
Coal, bituminous	530
Petroleum products	125, 589
Ores, metals and manufactures of: Iron and steel, pig and scrap	29, 645
Chemicals: Fertilizer materials	275
Total, internal receipts	157, 443

COASTWISE SHIPMENTS	
Ores, metals and manufactures of: Iron and steel pipe	3, 978
Total, coastwise shipments	3, 978

INTERNAL SHIPMENTS	
Vegetable food products: Tomatoes	75
Nonmetallic minerals: Petroleum products	543
Ores, metals and manufactures of: Iron and steel pipe and fittings	8, 175
Total, internal shipments	8, 793

Grand total, all traffic 220, 540

EAST BURLINGTON, N. J.

General description.—East Burlington is situated on the east bank of Delaware River, fronting on the 20-foot auxiliary channel extending from the main channel at Burlington along the east side of Burlington Island, about 20 miles above Chestnut Street, Philadelphia, and about 14 miles below Trenton, N. J.

Piers, wharves, and docks.—There are two wharves at East Burlington, one being the 2,400-foot quay-type wharf of the United States Pipe & Foundry Co., having 20 feet of water alongside at mean low water, and the other an open pile wharf of the Standard Oil Co. of New Jersey with 17 feet of water alongside. The wharves are shown under reference Nos. 6 and 7 on the map and in the descriptive table on pages 87 and 88.

Railroads.—East Burlington is served by the Pennsylvania Railroad, a description of which is given on page 41.

Car demurrage.—The general provisions regarding car demurrage are shown on page 42.

Diversion and reconsignment.—The general provisions regarding diversion and reconsignment are shown on page 42.

Commerce.—Separate statistics of water-borne commerce at East Burlington are not available, since these data are included in a compilation comprising the combined figures of the commerce at Burlington, Florence, and Roebling, N. J.

A comparative statement showing the volume of commerce in the various classes of traffic at Burlington, Florence, and Roebling during the 6-year period 1932–37 is presented on page 105, while details of the commerce during the calendar year 1937 are shown on page 111.

BRISTOL, PA.

General description.—Bristol, Pa. is situated on the west bank of Delaware River about 20 miles above Chestnut Street, Philadelphia, and about 14 miles below Trenton, N. J., fronting on the 25-foot river channel. It was the terminal of the Delaware & Lehigh Canal when that waterway was in operation.

Piers, wharves, and docks.—There are five wharves at Bristol, having a combined berthing space of 1,888 linear feet with depths of water alongside ranging up to 15 feet at mean low water. One wharf, owned and operated by the borough of Bristol, is open to all on equal terms. The Philadelphia Shipbuilding Co. has acquired a wharf and launching ways of a former shipyard at the upper end of the water front, for the purpose of establishing a shipbuilding plant. The wharves at Bristol are shown under reference Nos. 8–12 on the port facilities map and in the descriptive table on page 88.

Railroads.—The port of Bristol is served by the Pennsylvania Railroad, a description of which is given on page 41.

Switching.—For movement of all freight between industrial, private, or public sidings, the charge is $6.75 per car on road haul, and 38 cents per ton, as rated, minimum charge $8.10 per car on non-road-haul traffic. The foregoing does not apply on traffic to or from water lines. Intraplant switching on line-haul traffic is assessed $2.70 per car, and on non-line-haul traffic $3.15 per car. Tariff authority, Pennsylvania Railroad 1589, I. C. C. 691.

Commerce.—Separate statistics of water-borne commerce at Bristol are not available since these data are included in a compilation comprising the combined figures of the commerce of Bristol and Penn Manor, Pa. The latter place is the site of extensive sand and gravel works, the products of which constitute practically the entire volume of tonnage moved in this area.

A comparative statement showing the volume of commerce in the various classes of traffic at Bristol and vicinity during the 6-year period 1932–37 is presented on page 105, while the details of the commerce during the calendar year 1937 are shown in the following table:

Water-borne commerce on Delaware River, at Bristol, Pa., and vicinity, calendar year, 1937

[Quantities expressed in short tons]

INTERNAL RECEIPTS	
Nonmetallic minerals: Fuel and gas oil	5, 395
Total, internal receipts	5, 395
INTERNAL SHIPMENTS	
Nonmetallic minerals: Sand and gravel	1, 062, 843
Total, internal shipments	1, 062, 843
INTRAPORT SHIPMENTS	
Nonmetallic minerals: Sand and gravel	119, 511
Total, intraport shipments	119, 511
Grand total, all traffic	1, 187, 749

FLORENCE, N. J.

General description.—Florence, N. J., is situated on the east bank of Delaware River, about 23 miles above Chestnut Street, Philadelphia, and about 10 miles below Trenton, N. J., fronting on the 25-foot river channel.

Piers, wharves, and docks.—There are two wharves at Florence; one, operated by the Florence Pipe Foundry & Machine Co., has berthing space of 850 feet with 12 feet of water alongside at mean low water, and the other, operated by McElven & Son, Inc., has total berthing space of 190 feet with 11 and 18 feet of water alongside at mean low water. The wharves at Florence are shown under reference Nos. 13 and 14 on the port facilities map and in the descriptive table on page 90.

Railroads.—Florence is served by the Pennsylvania Railroad, a description of which is given on page 41.

Switching.—For movement of all freight between industrial, private, and public sidings, the Pennsylvania Railroad publishes a charge of $6.75 per car on road-haul, and 50 cents per ton, as rated, minimum charge, $9.50 per car on non-road-haul traffic. Intraplant switching is assessed $2.70 per car on road-haul, and $3.15 per car on non-road-haul traffic. The former charges do not apply on traffic to or from water carriers. Tariff authority, Pennsylvania Railroad 1589, I. C. C. 691.

Car demurrage.—The general provisions regarding car demurrage are shown on page 42.

Diversion and reconsignment.—The general provisions regarding diversion and reconsignment are shown on page 42.

Commerce.—Separate statistics of water-borne commerce at Florence are not available since these data are included in a compilation comprising the combined figures of the commerce at Burlington, Florence, and Roebling, N. J.

A comparative statement showing the volume of commerce in the various classes of traffic at Burlington, Florence, and Roebling during the 6-year period 1932–37 is presented on page 105, while the details of the commerce for the calendar year 1937 are shown on page 111.

ROEBLING, N. J.

General description.—The village of Roebling is situated on the east bank of the Delaware River, about 25 miles above Chestnut Street, Philadelphia, and about 8 miles below Trenton, N. J. It is owned by the John A. Roebling Sons Co. whose extensive wire-cable plant is the only industry at this place. It fronts on the 25-foot river channel.

Piers, wharves, and docks.—The one wharf at Roebling is operated by the John A. Roebling Sons Co. for the receipt of pig iron and fuel oil. It is a quay-type timber wharf having 348 linear feet of berthing space and 12 feet of water alongside at mean low water. The wharf is shown under reference No. 15 on the port facilities map and in the descriptive table on page 90.

Railroads.—Roebling is served by the Pennsylvania Railroad, a description of which is given on page 41.

Switching.—For movement of all freight from industrial, private or public sidings to industrial, private or public sidings, a rate of $6.75 per car applies on road-haul traffic and 50 cents per ton of 2,000 pounds, minimum charge $9.50 per car on non-road-haul traffic. The foregoing does not apply on traffic to or from water lines. Intra-plant switching is assessed $2.70 per car on road-haul, and $3.15 per car on non-road-haul traffic except in connection with intrastate road-haul traffic, on which a rate of $1.35 per car applies on all individual cars, loaded or empty. Tariff authority, Pennsylvania Railroad 1589, I. C. C. 691.

Commerce.—Separate statistics of water-borne commerce at Roebling are not available since these data are included in a compilation comprising the combined figures of the commerce at Burlington, Florence, and Roebling, N. J.

A comparative statement showing the volume of commerce in the various classes of traffic at Burlington, Florence, and Roebling during the 6-year period 1932–37 is presented on page 105, while the details of the commerce for the calendar year 1937 are shown on page 111.

FIELDSBORO, N. J.

General description.—Fieldsboro is situated on the east bank of the Delaware River, about 28 miles above Chestnut Street, Philadelphia, and about 5 miles below Trenton, N. J., fronting on the 25-foot river channel.

Piers, wharves, and docks.—There are two wharves at Fieldsboro, both owned by the Delaware River Sand Dredging Co. One is situated near the foot of Washington Street, and is used occasionally for the receipt of fertilizer, while the other is situated in a bight north of Newbold Island, and is used for the handling of sand and gravel. The wharves are shown under reference Nos. 16 and 17 on the port facilities map and in the descriptive table on page 91.

Railroads.—Fieldsboro is served by the Pennsylvania Railroad, a description of which is presented on page 41.

Switching.—The Pennsylvania Railroad publishes the same charges applicable at Fieldsboro as are shown for Roebling on page 42, and under the same authority.

Commerce.—Separate statistics of water-borne commerce for Fieldsboro are not available since these data are included in a compilation comprising the combined figures of the commerce at Bordentown and vicinity.

A comparative statement, showing the volume of commerce in the various classes of traffic at Bordentown and vicinity during the 6-year period 1932–37, is presented on page 105. There was no commerce recorded during the calendar year 1937.

TRENTON, N. J.

General description.—Trenton is situated on the east bank of Delaware River at the head of navigation, about 33 miles above Chestnut Street, Philadelphia, and about 135 miles from the Atlantic Ocean. It is the capital of the State of New Jersey and is an important manufacturing center, noted for its production of iron and steel products, sanitary ware, pottery, rubber goods, textiles, and other manufactures. The 25-foot river channel extends to the upper end of the Trenton Marine Terminal on the lower end of the city water front, from which point a 12-foot channel extends to the Pennsylvania Railroad bridge at Ferry Street, Trenton.

Piers, wharves, and docks.—There are four terminals at Trenton, three of which are owned by the city, and one owned and operated by private interests. The latter is situated about 1 mile below the city limits at what is known as Duck Island. The city also owns river frontage at the foot of Lalor Street, and at the foot of Cliff Street. The city-owned terminals are known as the Trenton marine terminal, Trenton municipal wharf No. 1, and Trenton municipal wharf No. 2. The Trenton marine terminal, situated near the lower city limits, is operated for the handling of general cargo in foreign and domestic trade and is equipped with transit sheds and adequate cargo handling facilities. It has 1,200 linear feet of berthing space with 25 feet of water alongside at mean low water. The municipal wharf No. 1 is at the foot of Ferry Street at the head of river navigation. It has a total of 785 linear feet of berthing space with 12 feet of water alongside at mean low water and is a public wharf open to all on equal terms. Municipal wharf No. 2, situated immediately below wharf No. 1, is leased to the Pure Oil Co. The terminal at Duck Island is owned and operated jointly by the Atlantic Refining Co., Servusoil Co., Shell Union Oil Corporation, and the Sun Oil Co. for the transfer of petroleum products by pipe lines to their storage tanks in rear. The terminals at Trenton are shown under reference Nos. 18–21 on the port facilities map, and in the descriptive table on page 91.

Storage warehouses.—Facilities for the dry storage of commodities handled in water-borne commerce are provided by the Anchor Ware-

house Co. at New York and Olden Avenues. The warehouse is a brick structure of 7 stories, having a total floor space of 47,600 square feet. The height between floors is 7½ feet, and the allowable floor load 200 pounds. The storage plant has rail connection with the Pennsylvania Railroad and the Reading Railway System.

Bulk freight storage.—Open and covered storage space for bulk commodities is available at the Trenton marine terminal. Covered storage space totaling 56,902 square feet is provided in transit sheds, Nos. 1 and 2 on the wharf, and in lumber sheds, Nos. 1 and 2, which are situated on the east side of Lamberton Avenue, about 250 feet in the rear of the wharf front. Open storage space of approximately 5 acres is available within the fenced area of the terminal. Open storage space of approximately one-half acre is available at municipal wharf No. 1, at the foot of Ferry Street.

Airports and air lines.—Mercer Airport, a municipal field, is situated 5½ miles northwest of the city. Facilities for servicing aircraft day and night are available. The airport is not designated in the published schedules of the principal transport airlines.

Railroads.—The port of Trenton is served by the Pennsylvania Railroad and the Reading Railway System, general descriptions of which are given on page 41.

Facilities for interchange between rail and water.—Direct interchange between rail and water is available at the Trenton marine terminal, which is equipped with trackage on the wharf apron and gantry cranes for the transfer of cargo between car and vessel. The terminal has physical connection with the Pennsylvania Railroad. Connection with the rails of the Reading Railway System is made through the Pennsylvania Railroad at the yards in the vicinity of New York Avenue.

Switching.—*Pennsylvania Railroad.*—For movement of all freight from industrial, public or private sidings to industrial, private or public sidings, a rate of $6.75 per car applies on road-haul traffic; and 38 cents per ton, as rated, minimum charge $8.10 per car on non-road-haul traffic. For movement of all freight from junction of Pennylvania Railroad and Reading Co. to industries having private or assigned sidings on the Pennsylvania Railroad, a charge of 50 cents per ton, as rated, with minimum charge of $6.30 per car applies on road-haul traffic. The foregoing charges will not apply on traffic to or from water lines. For movement of all freight, carloads, from the Pennsylvania Railroad tracks at Trenton to Reading Co. tracks at Trenton, a charge of 66 cents per ton, as rated, applies on road-haul traffic and 88 cents per ton, as rated, on non-road-haul traffic. Intraplant switching is assessed $4.05 per car on road-haul, and $6.30 per car on non-road-haul traffic. Complete information is contained in Pennsylvania Railroad tariff 1589, I. C. C. 691.

Reading Co.—The switching charges of this company, applicable specifically at Trenton, include only a charge of 50 cents per ton of 2,000 pounds for the movement of all carload traffic, except coal and coke, received from or delivered to Pennsylvania Railroad for account of all industries having private or assigned sidings located on Reading Co. at Trenton. This rate is subject to a minimum charge of $6.30 per car. Tariff authority, Reading Co. I. C. C. 616.

Car demurrage.—The general provisions governing car demurrage are shown on page 42.

Diversion and reconsignment.—The general provisions regarding diversion and reconsignment are shown on page 42.

Transit privileges.—The provisions regarding transit privileges as shown for Marcus Hook, Pa., on page 56, also apply at Trenton.

Miscellaneous charges.—The provisions regarding miscellaneous charges as shown for Marcus Hook, Pa., on page 57, also apply at Trenton.

On loading and unloading export, import, and intercoastal traffic, the Pennsylvania Railroad provides that on freight destined to or received from foreign countries, also intercoastal freight moving via the Panama Canal, which pays the Pennsylvania Railroad and its rail connections 9 cents per 100 pounds, or $1.80 per ton as rated, or higher, the rates to or from Trenton will include loading from piers to cars or unloading from cars to piers at the Trenton Marine Terminal. On freight paying less than the above-named minimum, when the Pennsylvania Railroad performs the service, there will be an additional charge for loading or unloading of 50 cents per ton, as rated, which must be added to the freight charge; the total charge, however, not to exceed 9 cents per 100 pounds or $1.80 per ton, as rated. The foregoing does not apply on coal or coke, nor on pieces weighing over 3 tons, nor pieces of extraordinary measurements. Special provisions and charges apply on lumber, on which charges of 35, 50, and 75 cents per ton apply, depending upon the type of equipment, and whether the traffic pays 9 cents per 100 pounds or not. Complete information is contained in this company's tariff 1648–D, I. C. C. 1273.

Rail rates.—On export, import, and intercoastal traffic from and to Central Freight Association territory, and on traffic moving through that territory, to and from beyond, Trenton generally takes the New York basis. The following tables show import, export, intercoastal, and coastwise class rates between Central Freight Association Territory and the more important North Atlantic, South Atlantic, and Gulf ports.

Import, intercoastal, and coastwise all-rail class rates from shipside at North Atlantic, South Atlantic, and Gulf ports to representative points in Central Freight Association territory

[In cents per 100 pounds; governed by official classification; and in effect Feb. 25, 1938]

To—	From—	Classes					
		1	2	3	4	5	6
Chicago, Ill	Boston	148	127	101	73	52	42
	Philadelphia	142	121	99	71	50	40
	Norfolk	140	119	98	70	49	39
	New York	148	127	101	73	52	42
	Baltimore	140	119	98	70	49	39
	Southern ports in—						
	Groups 1, 2, 3, and 5:[1]						
	A	140	119	98	70	49	39
	B	130	109	89	65	46	36
Cairo, Ill	Boston	164	141	112	81	58	46
	Philadelphia	158	135	110	79	56	44
	Norfolk	156	133	109	78	55	43
	New York	164	141	112	81	58	46
	Baltimore	156	133	109	78	55	43
	Southern ports in—						
	Groups 1, 2, and 3:[1]						
	A	116	99	81	58	41	32
	B	106	89	72	53	38	29
	Group 5:[1]						
	D	128	109	90	64	45	35
	E	118	99	81	59	42	32
Evansville, Ind	Boston	152	130	104	75	53	43
	Philadelphia	146	124	102	73	51	41
	Norfolk	144	122	101	72	50	40
	New York	152	130	104	75	53	43
	Baltimore	144	122	101	72	50	40
	Southern ports in—						
	Groups 1, 2, and 3:[1]						
	A	128	109	90	64	45	35
	B	118	99	81	59	42	32
	Group 5:[1]						
	D	128	109	90	64	45	35
	E	118	99	81	59	42	32
Indianapolis, Ind	Boston	136	117	93	67	48	38
	Philadelphia	130	111	91	65	46	36
	Norfolk	128	109	90	64	45	35
	New York	136	117	93	69	48	38
	Baltimore	128	109	90	61	45	35
	Southern ports in—						
	Groups 1, 2, and 3:[1]						
	A	128	109	90	64	45	35
	B	118	99	81	59	42	32
	Group 5:[1]						
	D	128	109	90	64	45	35
	E	118	99	81	59	42	32
Louisville, Ky	Boston	140	120	95	69	49	39
	Philadelphia	134	114	93	67	47	37
	Norfolk	132	112	92	66	46	36
	New York	140	120	95	69	49	39
	Baltimore	132	112	92	66	46	36
	Southern ports in—						
	Groups 1, 2, and 3:[1]						
	A	116	99	81	58	41	32
	B	106	89	72	53	38	29
	Group 5:[1]						
	D	116	99	81	58	41	32
	E	106	89	72	53	38	29
Milwaukee, Wis	Boston	152	129	105	76	53	42
	Philadelphia	146	123	103	74	51	40
	Norfolk	144	121	102	73	50	39
	New York	152	129	105	76	53	42
	Baltimore	144	121	102	73	50	39
	Southern ports in—						
	Groups 1, 2, and 3:[1]						
	A	144	121	102	73	50	39
	B	134	111	93	68	47	36
	Group 5:[1]						
	D	144	121	102	73	50	39
	E	144	121	102	73	50	39

See footnotes at end of table.

Import, intercoastal, and coastwise all-rail class rates from shipside at North Atlantic, South Atlantic, and Gulf ports to representative points in Central Freight Association territory—Continued

[In cents per 100 pounds; governed by official classification; and in effect Feb. 25, 1938]

To—	From—	Classes					
		1	2	3	4	5	6
Peoria, Ill.	Boston	156	134	107	77	55	44
	Philadelphia	150	128	105	75	53	42
	Norfolk	148	126	104	74	52	41
	New York	156	134	107	77	55	44
	Baltimore	148	126	104	74	52	41
	Southern ports in—						
	Groups 1, 2, and 3:[1]						
	A	140	119	98	70	49	39
	B	130	109	89	65	46	36
	Group 5:[1]						
	D	140	119	98	70	49	39
	E	130	109	89	65	46	36
St. Louis, Mo.	Boston	161	138	110	80	57	45
	Philadelphia	155	132	108	78	55	43
	Norfolk	153	130	107	77	54	42
	New York	161	138	110	80	57	45
	Baltimore	153	130	107	77	54	42
	Southern ports in—						
	Groups 1, 2, and 3:[1]						
	A	140	119	98	70	49	39
	B	130	109	89	65	46	36
	Group 5:[1]						
	D	140	119	98	70	49	39
	E	130	109	89	65	46	36
Cincinnati, Ohio	Boston	124	107	84	61	44	35
	Philadelphia	118	101	82	59	42	33
	Norfolk	116	99	81	58	41	32
	New York	124	107	84	61	44	35
	Baltimore	116	99	81	58	41	32
	Southern ports in—						
	Groups 1, 2, and 3:[1]						
	A	116	99	81	58	41	32
	B	106	89	72	53	38	29
	Group 5:[1]						
	D	116	99	81	58	41	32
	E	106	89	72	53	38	29

[1] Group 1 includes New Orleans, Mobile, Gulfport, Pascagoula, and Panama City.
Group 2 includes Galveston, Houston, and Texas City.
Group 3 includes Port Arthur, Beaumont, Orange, and Lake Charles.
Group 5 includes Brunswick, Charleston, Fernandina, Jacksonville, Savannah, and Wilmington.
Rates shown in line indicated by "A" apply on traffic from Gulf ports imported from Canal Zone, Cuba, insular possessions of the United States, and all origins not located in the United States, Canada, Newfoundland, Europe, and Africa.
Rates shown in line indicated by "B" apply on traffic imported from Europe and Africa.
Rates shown in line indicated by "D" apply on traffic from South Atlantic ports imported from Canal Zone, Cuba, insular possessions of the United States, and all origins not located in the United States, Canada, Newfoundland, Europe, and Africa.
Rates shown in line indicated by "E" apply on traffic from South Atlantic ports imported from Europe and Africa.
Tariff authorities; Agent Frank Van Ummersen's 20-B, I. C. C. 250; Agent W. S. Curlett's 79-A, I. C. C. 539; and Agent K. C. Bogue's 1021-D, I. C. C. 24.

Export, intercoastal, and coastwise all-rail class rates to shipside at North Atlantic, South Atlantic, and Gulf ports from representative points in Central Freight Association territory

[In cents per 100 pounds; governed by official classification; and in effect Feb. 25, 1938]

From—	To—	Classes					
		1	2	3	4	5	6
Chicago, Ill.	Boston	143	122	101	73	52	42
	New York	143	122	101	73	52	42
	Philadelphia	141	120	99	71	50	40
	Baltimore	140	119	98	70	49	39
	Norfolk	140	119	98	70	49	39
	Southern ports in—						
	Groups 1, 2, and 3: [1]						
	A	140	119	98	70	49	39
	B	125	104	89	65	46	36
	Group 4: [1]						
	C	202½	172	142	102½	75	61
	Group 5: [1]						
	D	140	119	98	70	49	39
	E	125	104	89	65	46	36
Cairo, Ill.	Boston	159	136	112	81	58	46
	New York	159	136	112	81	58	46
	Philadelphia	157	134	110	79	56	44
	Baltimore	156	133	109	78	55	43
	Norfolk	156	133	109	78	55	43
	Southern ports in—						
	Groups 1, 2, and 3: [1]						
	A	116	99	81	58	41	32
	B	101	84	72	53	38	29
	Group 4: [1]						
	C	178½	152	125	90½	67	54
	Group 5: [1]						
	D	128	109	90	64	45	35
	E	113	94	81	59	42	32
Evansville, Ind.	Boston	147	125	104	75	53	43
	New York	147	125	104	75	53	43
	Philadelphia	145	123	102	73	51	41
	Baltimore	144	122	101	72	50	40
	Norfolk	144	122	101	72	50	40
	Southern ports in—						
	Groups 1, 2, and 3: [1]						
	A	128	109	90	64	45	35
	B	113	94	81	59	42	32
	Group 4: [1]						
	C	190½	162	134	96½	71	57
	Group 5: [1]						
	D	128	109	90	64	41	32
	E	113	94	81	59	38	29
Indianapolis, Ind.	Boston	131	112	93	67	48	38
	New York	131	112	93	67	48	38
	Philadelphia	129	110	91	65	46	36
	Baltimore	128	109	90	64	45	35
	Norfolk	128	109	90	64	45	35
	Southern ports in—						
	Groups 1, 2, and 3: [1]						
	A	128	109	90	64	45	35
	B	113	94	81	59	42	32
	Group 4: [1]						
	C	190½	162	134	96½	71	57
	Group 5: [1]						
	D	128	109	90	64	45	35
	E	113	94	81	59	42	32
Louisville, Ky.	Boston	135	115	95	69	49	39
	New York	135	115	95	69	49	39
	Philadelphia	133	113	93	67	47	37
	Baltimore	132	112	92	66	46	36
	Norfolk	132	112	92	66	46	36
	Southern ports in—						
	Groups 1, 2, and 3: [1]						
	A	116	99	81	58	41	32
	B	101	84	72	53	38	29
	Group 4: [1]						
	C	178½	152	125	90½	67	54
	Group 5: [1]						
	D	116	99	81	58	41	32
	E	101	84	72	53	38	29
Milwaukee, Wis.	Boston	149	127	105	76	53	42
	New York	149	127	105	76	53	42
	Philadelphia	147	125	103	74	51	40

See footnotes at end of table.

Export, intercoastal, and coastwise all-rail class rates to shipside at North Atlantic, South Atlantic, and Gulf ports from representative points in Central Freight Association territory—Continued

[In cents per 100 pounds; governed by official classification; and in effect Feb 25, 1938]

From—	To—	Classes					
		1	2	3	4	5	6
Milwaukee, Wis	Baltimore	146	124	102	73	50	39
	Norfolk	146	124	102	73	50	39
	Southern ports in—						
	Groups 1, 2, and 3: [1]						
	A	146	124	102	73	50	39
	B	131	109	93	68	47	36
	Group 4: [1]						
	C	208½	177	146	105½	76	61
	Group 5: [1]						
	D	146	124	102	73	50	39
	E	146	124	102	73	50	39
Peoria, Ill	Boston	151	129	107	77	55	44
	New York	151	129	107	77	55	44
	Philadelphia	149	127	105	75	53	42
	Baltimore	148	126	104	74	52	41
	Norfolk	148	126	104	74	52	41
	Southern ports in—						
	Groups 1, 2, and 3: [1]						
	A	140	119	98	70	49	39
	B	125	104	89	65	46	36
	Group 4: [1]						
	C	202½	172	142	102½	75	61
	Group 5: [1]						
	D	140	119	98	70	49	39
	E	125	104	89	65	46	36
St. Louis, Mo	Boston	156	133	110	80	57	45
	New York	156	133	110	80	57	45
	Philadelphia	154	131	108	78	55	43
	Baltimore	153	130	107	77	54	42
	Norfolk	153	130	107	77	54	42
	Southern ports in—						
	Groups 1, 2, and 3: [1]						
	A	128	109	90	64	45	35
	B	113	94	81	59	42	32
	Group 4: [1]						
	C	190½	162	134	96½	71	57
	Group 5: [1]						
	D	140	119	98	70	49	39
	E	125	104	89	65	46	36
Cincinnati, Ohio	Boston	119	102	84	61	44	35
	New York	119	102	84	61	44	35
	Philadelphia	117	100	82	59	42	33
	Baltimore	116	99	81	58	41	32
	Norfolk	116	99	81	58	41	32
	Southern ports in—						
	Groups 1, 2, and 3: [1]						
	A	116	99	81	58	41	32
	B	101	84	72	53	38	29
	Group 4: [1]						
	C	178½	152	125	90½	67	54
	Group 5: [1]						
	D	116	99	81	58	41	32
	E	101	84	72	53	38	29

[1] Group 1 includes Gulfport, Mobile, New Orleans and group, Panama City, Pascagoula, and Pensacola.

Group 2 includes Galveston, Houston, Texas City, Clinton, Freeport, and Brasosport.

Group 3 includes Port Arthur, Orange, Beaumont, and Lake Charles.

Group 4 includes Miami, Port Everglades, Tampa, and Port Tampa.

Group 5 includes Brunswick, Savannah, Charleston, Wilmington, Fernandina, and Jacksonville.

Rates indicated by "A" apply on traffic to Gulf ports for export to Canal Zone, Cuba, insular possessions of the United States, and all destinations not in the United States, Canada, Newfoundland, Europe, Africa, and the east coast of South America.

Rates indicated by "B" apply to Gulf ports for export to Europe, Africa, and the east coast of South America.

Rates indicated by "C" apply on traffic to Florida ports for export to Cuba.

Rates indicated by "D" apply on traffic to South Atlantic ports for export to Canal Zone, Cuba, insular possessions of the United States, and all destinations not in the United States Canada, Newfoundland, Europe, Africa, and the east coast of South America.

Rates indicated by "E" apply on traffic to South Atlantic ports for export to Europe, Africa, and the east coast of South America.

Tariff authorities, Agent B. T. Jones' 490–A, I. C. C. 2767 and Agent K. C. Bogue's 1016–G, I. C. C. 10.

COMMERCE

Beginning with 1932, statistics have been compiled for the port of Trenton, N. J., and the following table and graph show the extent of the traffic at the port during the 5-year period 1932–36, inclusive.

During the 5-year period the commerce averaged 143,234 short tons, which included 70,883 tons of petroleum products representing about 50 percent of the total traffic of the port, an average of 27,391 tons of sand and gravel, 6,915 tons of coal, and smaller amounts of lumber, china clay, and other commodities.

Imports averaged 14,986 tons and represented 10.5 percent of the total port traffic; china clay averaged 6,256 tons, or 41.7 percent of the total imports; flint averaged 1,873 tons, or 12.5 percent; other clays, 1,839 tons, or 12.3 percent; and 33.5 percent consisted of muriate of potash, manure salts, and cornwall stone.

Exports averaged 1,487 tons, or 1 percent of the total traffic, 99.9 percent of which consisted of iron and steel scrap, exported in 1934, 1935, and 1936.

Coastwise receipts averaged 12,676 tons or 8.9 percent of the traffic of the port of Trenton. Coal averaged 6,569 tons, or 51.8 percent of the total; lumber, laths, and shingles averaged 4,455 tons, or 35.2 percent; petroleum products, largely fuel oil and gasoline, averaged 1,005 tons, or 7.9 percent; and iron and steel products and fertilizer averaged less than 3 percent.

Coastwise shipments averaged 6,051 tons or 4.2 percent of the total traffic of the port. Iron and steel products, largely wire, rope, and wire manufactures, averaged 4,780 tons, or 79 percent of the total coastwise shipments. Machinery and vehicles averaged 283 tons, or 4.7 percent of the total shipments; copper and products, 207 tons, or 3.4 percent; earthenware products, 195 tons, or 3.2 percent; and the remaining 9.7 percent consisted largely of potatoes, rubber manufactures, mineral earth pigments, linoleum, and other miscellaneous commodities.

Internal receipts at Trenton averaged 77,724 tons during the 5-year period 1932–36, and represented 54.2 percent of the total traffic of the port. Petroleum products accounted for an average of 69,119 tons, or 88.9 percent of the total traffic, and included 49,721 tons of gasoline and 17,613 tons of fuel and gas oil. Fertilizer averaged 4,818 tons, or 6.2 percent; piling and poles, 1,737 tons, or 2.2 percent; and other commodities in smaller amounts included such items as ethyl fluid, coal, iron and steel pipe, and fertilizer ingredients.

Internal shipments from Trenton averaged 20,224 tons during the 5-year period 1932–36, and represented 14.1 percent of the total traffic of Trenton. Sand and gravel accounted for an average of 18,535 tons, or 91.6 percent of the total internal shipments. Petroleum products averaged 759 tons, or 3.8 percent of the total, and

smaller amounts of stone, fertilizer and ingredients, and miscellaneous commodities composed the remaining 930 tons, or 4.6 percent of the total internal shipments.

Intraport traffic averaged 10,086 tons or 7.1 percent of the total traffic of the port. It consisted largely of sand and gravel, which accounted for an average of 8,856 tons, or 87.8 percent of the total, and small amounts of stone, iron and steel products, and miscellaneous commodities.

Water-borne commerce at Trenton, N. J., 1932–36

[Quantities expressed in short tons]

Commodity	1932	1933	1934	1935	1936
IMPORTS					
Nonmetallic minerals:					
Clay, china	1,740	3,807	3,319	12,257	10,157
Clays, other		2,323	1,172	1,516	4,184
Flint		1,788	1,631	3,932	2,016
Stone, cornwall	902	507		654	1,748
Chemicals:					
Manure salts	150		502		
Muriate of potash	1,198	5,114	7,749	6,564	
Total, imports	3,990	13,539	14,373	24,923	18,105
EXPORTS					
Vegetable food products: Fruit, dried					14
Ores, metals and manufactures of: Iron and steel scrap			3,002	2,294	2,127
Total, exports			3,002	2,294	2,141
COASTWISE RECEIPTS					
Vegetable food products			45	25	
Wood and paper:					
Lumber, laths, and shingles		3,246	5,952	7,403	5,675
Wood pulp				115	
Nonmetallic minerals:					
Coal, bituminous		11,611	12,983	8,250	
Petroleum products:					
Fuel and gas oil		432	808		
Gasoline	641		1,760	1,384	
All other			100	75	
Ores, metals and manufactures of:					
Iron and steel:					
Structural					1,194
Wire and rope			403		73
Chemicals: Fertilizer materials				519	664
Unclassified: Miscellaneous			21		
Total, coastwise receipts	641	15,289	22,072	17,771	7,606
COASTWISE SHIPMENTS					
Animals and animal products: Leather and tanned skins			22		
Vegetable food products: Potatoes	224				
Vegetable products, inedible: Rubber manufactures			76	74	15
Textiles:					
Linoleum				32	58
All other			11	17	
Wood and paper: Paper and manufactures of				22	14
Nonmetallic minerals:					
Asbestos and manufactures			26		40
Earthenware products			174	484	315
Firebrick			24	495	162
All other			106	154	12
Ores, metals and manufactures of:					
Copper, wire, cable, and manufactures			73	852	108
Iron and steel:					
Scrap				138	
Structural				1,390	
Wire, rope and manufactures			596	20,393	836
All other				525	23
Zinc, dross					40

Water-borne commerce at Trenton, N. J., 1932–36—Continued

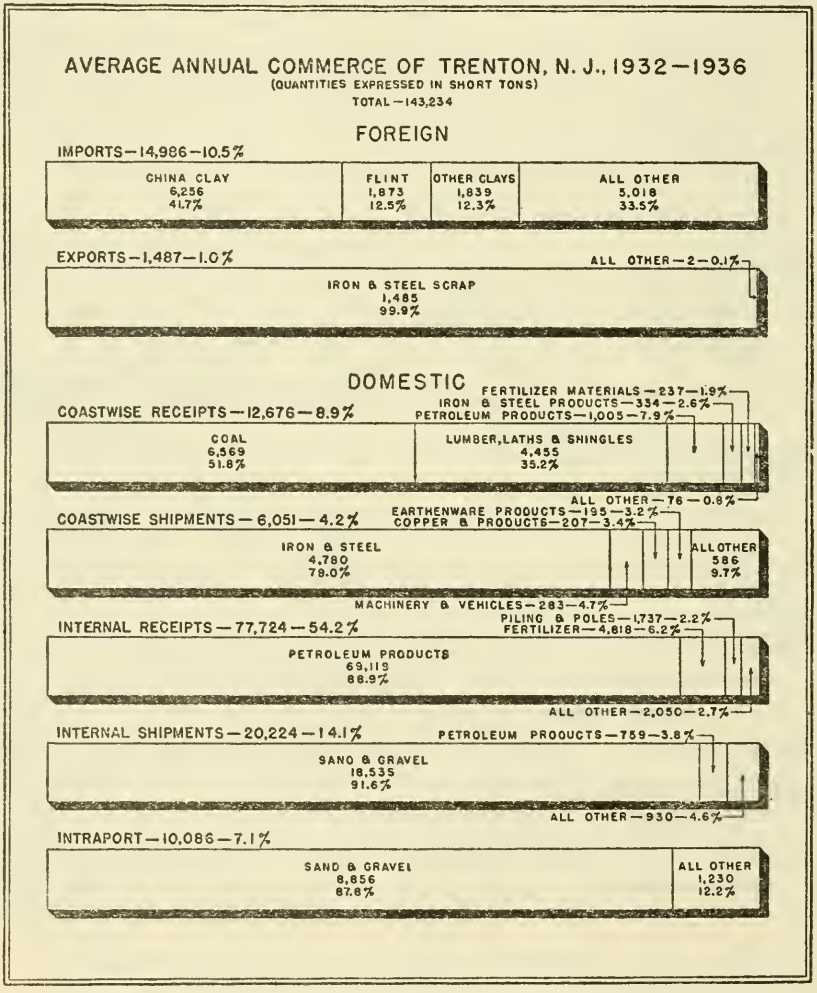
[Quantities expressed in short tons]

Commodity	1932	1933	1934	1935	1936
COASTWISE SHIPMENTS—continued					
Machinery and vehicles:					
Machinery and parts	----------	----------	8	630	200
Vehicles and parts	----------	----------	----------	19	560
Chemicals: Mineral earth pigments	----------	----------	----------	127	----------
Unclassified: Miscellaneous	----------	----------	265	811	103
Total, coastwise shipments	224	----------	1,381	26,163	2,486
INTERNAL RECEIPTS					
Animals and animal products: Oysters	40	----------	----------	----------	----------
Vegetable food products: Potatoes	----------	----------	----------	----------	25
Wood and paper:					
Lumber	414	102	----------	233	----------
Piling and poles	----------	1,140	3,331	1,814	2,398
Railroad ties	----------	----------	----------	432	----------
Nonmetallic minerals:					
Coal	81	1,559	----------	90	----------
Petroleum products:					
Fuel and gas oil	13,484	14,548	6,150	25,977	27,906
Gasoline	59,184	43,458	39,250	44,580	62,131
Kerosene	143	521	228	1,744	1,712
Lubricating oil	1,135	695	1,525	762	60
Other	133	83	52	105	27
Ores, metals and manufactures of:					
Iron and steel:					
Pipe	----------	----------	----------	1,621	----------
Scrap	----------	----------	----------	220	145
Tin cans	4	28	----------	20	----------
Machinery and vehicles: Machinery	----------	----------	----------	----------	15
Chemicals:					
Ethyl fluid	----------	----------	----------	----------	3,369
Fertilizer	1,465	3,875	4,984	6,114	7,654
Fertilizer materials:					
Lime	----------	----------	----------	----------	410
Nitrates	----------	----------	100	190	----------
Potash	----------	----------	----------	----------	502
Superphosphates	200	270	----------	----------	105
Other	----------	75	----------	----------	----------
Total, internal receipts	76,284	66,354	55,620	83,902	106,459
INTERNAL SHIPMENTS					
Vegetable food products: Tomatoes	----------	----------	----------	----------	39
Nonmetallic minerals:					
Petroleum products:					
Fuel and gas oil	----------	34	----------	757	435
Gasoline	305	746	56	422	817
Lubricating oil	22	98	7	----------	60
Other	13	----------	13	10	----------
Sand and gravel	89,058	----------	1,040	2,175	400
Stone	----------	----------	3,894	----------	----------
Chemicals:					
Fertilizer	----------	148	----------	100	----------
Fertilizer materials	----------	----------	----------	170	100
Unclassified: Miscellaneous	200	----------	----------	----------	----------
Total, internal shipments	89,598	1,026	5,010	3,634	1,851
INTRAPORT TRAFFIC					
Nonmetallic minerals:					
Sand and gravel	----------	----------	11,000	----------	33,282
Stone	----------	----------	----------	6,000	----------
Ores, metals and manufactures of:					
Iron and steel:					
Pipe and tubing	----------	----------	48	----------	----------
Scrap	----------	----------	----------	----------	89
Machinery and vehicles: Machinery and parts	----------	----------	12	----------	----------
Total, intraport traffic	----------	----------	11,060	6,000	33,371

Summary of water-borne commerce at Trenton, N. J., 1932–36

[Quantities expressed in short tons]

Year	Foreign			Domestic						Grand total
				Coastwise		Internal		Intra-port	Total	
	Imports	Exports	Total	Receipts	Shipments	Receipts	Shipments			
1932	3,990	--------	3,990	641	224	76,284	89,598	--------	166,747	170,737
1933	13,539	--------	13,539	15,289	--------	66,354	1,026	--------	82,669	96,208
1934	14,373	3,002	17,375	22,072	1,381	55,620	5,010	11,060	95,143	112,518
1935	24,923	2,294	27,217	17,771	26,163	83,902	3,634	6,000	137,470	164,687
1936	18,105	2,141	20,246	7,606	2,486	106,459	1,851	33,371	151,773	172,019
Average	14,986	1,487	16,473	12,676	6,051	77,724	20,224	10,086	126,761	143,234



Water-borne commerce on Delaware River, at Trenton, N. J., calendar year 1937

[Quantities expressed in short tons]

IMPORTS

Nonmetallic minerals:	
China clay	9,227
Cornwall stone	2,991
Flint	9,159
Other clays	6,110
Chemicals: Muriate of potash	4,419
Total, imports	31,906

EXPORTS

Ores, metals and manufactures of: Iron and steel scrap	7,877
Total, exports	7,877

COASTWISE RECEIPTS

Wood and paper:	
Lath and shingles	102
Lumber	10,033
Total, coastwise receipts	10,135

COASTWISE SHIPMENTS

Wood and paper: Wallboard	133
Nonmetallic minerals:	
Earthenware products	532
Fire brick	434
All other	130
Ores, metals and manufactures of:	
Copper wire	599
Iron and steel wire rope	967
All other	134
Unclassified:	
Roofing material	105
General merchandise	212
Total, coastwise shipments	3,246

INTERNAL RECEIPTS

Nonmetallic minerals:	
Cinders	1,386
Petroleum products	122,588
Chemicals:	
Ethyl fluid	836
Fertilizers	10,217
Total, internal receipts	135,027

INTERNAL SHIPMENTS

Wood and paper: Lumber	70
Nonmetallic minerals: Petroleum products	208
Chemicals: Coal tar	800
Total, internal shipments	1,078

Water-borne commerce on Delaware River, at Trenton, N. J., calendar year 1937—Continued

[Quantities expressed in short tons]

INTRAPORT RECEIPTS		INTRAPORT SHIPMENTS	
Nonmetallic minerals: Coal, bituminous	101	Nonmetallic minerals: Coal, bituminous	101
Machinery and vehicles: Machinery	83	Sand and gravel	292, 275
Total, intraport receipts	184	Machinery and vehicles: Machinery	83
		Total, intraport shipments	292, 459

SUMMARY

Foreign:		Internal traffic:	
Imports	31, 906	Receipts	135, 027
Exports	7, 877	Shipments	1, 078
Total, foreign	39, 783	Total, internal	136, 105
Coastwise:		Intraport:	
Receipts	10, 135	Receipts	184
Shipments	3, 246	Shipments	292, 459
Total, coastwise	13, 381	Total, intraport	292, 643
		Grand total, all traffic	481, 912

List of piers, wharves, and docks at ports on Delaware River

PHILADELPHIA, PA., TO TRENTON, N. J.

Reference number on map	Name	Location	For description see page—
1	Kieckhefer Container Co. wharf	Delair, N. J.	86
2	Public Service Co. wharf	Burlington, N. J.	
3	Price wharf	do	
4	City wharf	do	87
5	Waterworks wharf	do	
6	Foundry wharf	East Burlington, N. J.	
7	Standard Oil Co. wharf	do	88
8	Canal Co. wharf	Bristol, Pa.	
9	Public wharf	do	
10	Manhattan Soap Co. wharf	do	89
11	Superior Zinc Corporation wharf	do	
12	Fleetwings wharf	do	
13	Pipe foundry wharf	Florence, N. J.	90
14	McElven & Son wharf	do	
15	Roebling wharf	Roebling, N. J.	
16	Delaware River sand wharf	Fieldsboro, N. J.	91
17	Fieldsboro wharf	do	
18	Duck Island oil wharf	do	
19	Trenton Marine Terminal	Trenton, N. J.	92
20	Trenton municipal wharf No. 2	do	
21	Trenton municipal wharf No. 1	do	

WAR DEPARTMENT

LEGEND

- GENERAL CARGO TERMINAL — FOREIGN TRADE
- GENERAL CARGO TERMINAL — COASTWISE & INTERCOASTAL TRADE
- STORAGE WAREHOUSE
- SAND & GRAVEL
- IRON & STEEL
- ORE HANDLING
- RAILWAY PASSENGER STATION
- OIL HANDLING PLANTS

CORPS OF ENGINEERS, U.S. ARMY

BOARD OF ENGINEERS
FOR RIVERS AND HARBORS

PORTS ON THE DELAWARE RIVER, PHILA., PA. TO TRENTON, N. J.

SCALE OF FEET
1,000 0 1,000 2,000 3,000

SUBMITTED:
CHIEF STATISTICIAN

APPROVED
LT. COL., CORPS OF ENGINEERS, U.S.A.

DATA BY. H.L.Z.
DRAWN BY
NOVEMBER 93

PART II

PREPARED BY

DIVISION OF RESEARCH

UNITED STATES MARITIME COMMISSION

THE PORT OF CHESTER, PA.

PORT CUSTOMS AND REGULATIONS

FEDERAL SERVICES AND REGULATIONS

A digest of the principal regulations of the Public Health, Customs, and Immigration Services, together with a compendium of the services and charges of those agencies applicable to seagoing vessels, their freight and passengers and a list of Federal documents required of such vessels are contained in Miscellaneous Series No. 1—Port and Terminal Charges at United States Ports. Copies of this publication may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C.

Treasury Department

Customs Service.—The Customs Service is charged with inspection of import cargo; determination of duties to be imposed on import commodities in conformity with tariff laws of the United States; supervision over out-bound merchandise on which a drawback is payable, or merchandise withdrawn from bonded warehouses for exportation, or landed for transshipment, and supervision over the entry and clearance of vessels.

Chester is the port of entry for vessels calling at all points on the Delaware River between the southern limits of the port of Philadelphia and the Delaware State line. Entry of vessels may be made at the customs office located in the Post Office Building at Fifth and Welsh Streets, Chester, Pa., between the hours of 9 a. m. and 4:30 p. m. on weekdays, except on Saturday, when the office is open from 9 a. m. to 1 p. m. From the last Sunday in April to the last Sunday in September the customs office opens and closes 1 hour earlier.

Clearance of vessels may be effected by agents or masters during regular office hours, and at other times by special arrangement with customs officials.

Marine documents will not be issued at Chester. When such documents are required, they may be obtained at either Philadelphia, Pa., or Wilmington, Del.

Regular working hours for inspectors are from 8 a. m. to 5 p. m. with 1 hour allowed for lunch. When inspectors are required for overtime work, arrangements must be made with the deputy collector in advance.

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There are no restrictions on vessels berthing at any time provided that proper notice of arrival is transmitted to the customs office and other officials in conformity with regulations governing the arrival and entry of vessels.

Public Health Service.—The Public Health Service is charged with the inspection of all vessels, passengers, and crews arriving from foreign ports except those operating exclusively between Canadian ports and ports in continental United States and Alaska; Cuba, Bahama Islands, and Florida ports south of 28° north latitude; and between the west coast of Lower California and the State of California south of 33° north latitude.

However, exempted vessels may be subjected to inspection to determine rat infestation, and to regular quarantine inspection during the prevalence of quarantinable diseases at any foreign port of departure.

All inbound vessels subject to quarantine inspection destined to points above Marcus Hook, Pa., are required to stop at the boarding station at Marcus Hook for inspection and may not proceed until given pratique. Vessels will be inspected at any time between sunrise and sunset. Between sunset and 11 p. m. vessels will be inspected only in case of emergency. No vessels will be inspected between 11 p. m. and sunrise. Ample deepwater anchorage space is available opposite the station for all vessels awaiting inspection.

There are two quarantine stations located on the Delaware River, one at Marcus Hook, Pa., and the other at Reedy Island. The Reedy Island station is maintained only as reserve station for quarantinable diseases and vessels will not be inspected at that point. Marcus Hook is the boarding station and is also equipped to handle detention cases.

The Public Health Service maintains medical relief stations at Beebe Hospital, Lewes, Del., and at 225 Chestnut Street, Philadelphia, Pa., for the care and treatment of merchant seamen and beneficiaries of the various Government services. Hospital and outpatient service is available at both points.

Department of Labor

Immigration Service.—The United States Immigration Service of the Department of Labor is charged with inspecting aliens and regulating their entry into the United States.

The immigration station for the Delaware district is located at Gloucester, N. J., directly opposite Philadelphia. An office is also maintained at the customhouse, Second and Chestnut Streets, Philadelphia.

Inspectors board passenger vessels at the Delaware Breakwater and freighters about 20 miles below the immigration station.

UNITED STATES ARMY

Engineer Corps.—Under the direction of the Secretary of War and the Chief of Engineers, United States Army, the division engineer, North Atlantic Division, 1400 Maritime Exchange Building, 80 Broad Street, New York City, is charged with the improvement of rivers and harbors in the Philadelphia, Pa.; Binghamton and New York, N. Y.; Boston, Mass.; and Puerto Rico engineer districts. The district engineer, United States Engineer Office, 900 Customhouse, Second and Chestnut Streets, Philadelphia, Pa., is in direct charge of the work on the Delaware River.

DEPARTMENT OF COMMERCE

Bureau of Marine Inspection and Navigation.—The Bureau of Marine Inspection and Navigation maintains offices in the Customs Building, Philadelphia, Pa. This Bureau is responsible for the inspection of vessels, their hulls and machinery, to determine their seaworthiness and safety for passengers, crew, and cargo. Through a shipping commissioner it administers Federal laws designed to protect American seamen and to maintain discipline on shipboard. Shipping articles are signed before the shipping commissioner, who is empowered to protect the rights of seamen and to arbitrate disputes which might arise during the course of a voyage.

LOCAL RULES AND REGULATIONS

The following rules and regulations promulgated and enforced by the Navigation Commission for the Delaware River are generally applicable on the Delaware River from Trenton to Marcus Hook, and must be adhered to by all vessels navigating the Delaware River:

Display of signals for reporting station.—Vessels desirous of being reported when passing in or out of the capes of the Delaware must display their signals by day or night in a position where they can be seen from the reporting station of the Philadelphia Maritime Exchange on the inner Delaware Breakwater, say, about one-half mile inside Overfalls Light Vessel.

Speed of vessels.—Vessels shall not be worked or navigated in the Delaware River between the Point House wharf and pier G, Port Richmond, at a greater rate of speed than 8 nautical miles an hour, and such vessels shall navigate as far as is practicable from the pierhead line.

Vessels shall not be worked or navigated in the Delaware River in front of the navy yard, between gas and bell buoy No. 44 off mouth of Schuylkill River and red nun buoy No. 46, off Eagle Point, at a greater rate of speed than 12 nautical miles and hour.

Vessels passing craft anchored in the stream between Marcus Hook and Bristol, loading, discharging, or bunkering, shall not navigate at a greater rate of speed than 8 nautical miles an hour.

Vessels shall not be worked or navigated in the Delaware River off Chester or Marcus Hook at a greater rate of speed than 12 nautical miles an hour.

When vessels are moored to the ends of piers at Marcus Hook, lying parallel with the river, passing vessels shall not exceed a speed of 8 nautical miles an hour.

Penalty.—Every master, officer, or other person or persons having charge of any vessel navigating the Delaware River and its navigable tributaries, who shall violate any rule regulating the speed of vessels, made and promulgated by the commission, shall pay sum not exceeding $50 for the first offense and not less than $75, nor more than $100 for each subsequent offense.

Reporting.—It is the duty of the master of every vessel, within 36 hours next after arrival at the port of Philadelphia, to report to the Navigation Commission for the Delaware River the name of such vessel, her draught of water, and where any vessel shall be outward bound, her name and draught at that time. If a master of any vessel shall fail to make such report, he shall forfeit and pay the sum of $10. (Act of assembly, State of Pennsylvania, approved June 8, 1907.)

Anchoring and mooring.—It is unlawful for any vessel to anchor on the range line of any range lights established by the United States Lighthouse Board in Pennsylvania; and the master of any vessel so anchoring shall be deemed guilty of a misdemeanor and upon conviction thereof before any court of competent jurisdiction shall be punished by a fine not exceeding $50. (Act of assembly, State of Pennsylvania, approved May 13, 1879.)

All vessels at anchor in the port of Philadelphia shall keep their regulation riding lights exhibited during the night.

Vessels anchoring in the stream, and expecting to remain more than 5 running days, will be required to report to the Navigation Commission for anchorage berth, and will have to moor if directed.

If the Navigation Commission directs the removal of any vessel which lies in the harbor of the port of Philadelphia, and the vessel is not promptly moved as directed, they may cause the vessel to be moved at the expense of the master or owners thereof, and if said master or owners neglect or refuse on demand to pay such an expense, the Navigation Commission may recover the amount in an action of contract.

Should any of the prescribed anchorages in the port of Philadelphia become congested, vessels may be required to moor, and if necessary, to make fast alongside of other vessels already anchored.

Vessels hauled into any wharf or dock, or alongside of other vessels lying at any wharf or dock, must be made fast to the shore with proper lines with sufficient fenders between them and the inside vessels, and shall, when so ordered by the Navigation Commission, have their davits rigged in and anchors either at cockbill or at the hawsepipe, as most convenient.

When lines of vessels extend across a dock so as to obstruct passing vessels, the captain or person in charge shall, when so ordered by the Navigation Commission, cause the lines to be slackened or cast off. Such lines shall be marked at night by a red light in the center thereof.

Vessels lying at the ends of piers, so as to obstruct the passage to the adjoining docks, must move or slack their lines when necessary to accommodate other vessels entering or leaving the docks.

Vessels lying alongside of a wharf, and not taking in or discharging cargo, must make way for and permit other vessels that want to load or unload cargo to come inside next to wharf.

No dock shall be unnecessarily obstructed by a vessel so as to prevent the loading or unloading of cargo by another vessel.

Vessels that increase their width by using ballast logs, pontoons, or other devices of like nature, must move to accommodate other vessels when so ordered by the navigation commission, and shall pay the expense of moving such other vessels that have to be moved to allow the vessel with the above appliances to enter or leave dock.

Lights.—A vessel under 150 feet register length, when at anchor between sunset and sunrise, shall carry forward, where it can best be seen, but at a height not exceeding 20 feet above the hull, a white light in a lantern constructed so as to show a clear, uniform, and unbroken light, visible all around the horizon, at a distance of at least 1 mile.

A vessel of 150 feet or upward in register length, when at anchor between sunset and sunrise, shall carry in the forward part of the vessel, at a height of not less than 20 and not exceeding 40 feet above the hull, one such light, and at or near the stern of the vessel, and at such a height that it shall not be less than 15 feet lower than the forward light, another such light.

Vessels of more than 300 gross tons propelled by machinery, when moored or anchored in a fairway or channel where traffic is liable to congestion or confusion, shall display between sunrise and sunset on the forward part of the vessel where it can best be observed from other vessels one black ball or shape not less than 2 feet in diameter.

Deposit of refuse in river.—Vessels discharging ballast or any loose material must have tarpaulins from the ship's rail to the wharf or lighter, as the case may be, to prevent such material finding its way into the river or dock.

If any person or persons shall cast or place or leave in position where the same may be washed or drifted into the tideway of the River Delaware, or into the River Schuylkill from the lower falls thereof to its junction with the River Delaware, any ballast, cinders, ashes, dirt, refuse, or any heavy articles whatever, he or they so offending, for every such offense, shall forfeit and pay a sum not exceeding $100, to be sued for and recovered, with costs of suit, by the commission, for the use of the Commonwealth, before any magistrate of the city of Philadelphia, or justice of the peace of the proper county. (Act of assembly, State of Pennsylvania, approved June 8, 1907.)

Obstruction of channels.—Vessels lying in berths in the port of Philadelphia, in positions where they extend beyond the line of the pier, do so at their own risk, and may be held responsible for any damage that may occur by reason of their encroachment on the river. Such vessels shall display by night a white light on the extreme outshore end or side.

It shall be the duty of the president of the commission, immediately upon information of the sinking of any canal boat, barge, or other vessel, in the channel way of the tidewaters of the River Delaware or its navigable tributaries, or in any of the docks thereof, to give notice to the owner, master, or other agent having charge thereof, to raise and remove such obstruction within 10 days after the date of said notice, under a penalty of $100, and, in case of refusal or neglect of the parties interested, as aforesaid, to raise and remove such obstruction within the time specified in said notice, it shall be the further duty of said president of the commission to have it raised and removed, at the expense of the owner, master, or agent. (Act of assembly, State of Pennsylvania, approved June 8, 1907.)

Inflammables.—All vessels loaded with petroleum, benzine, benzol, gasoline, or naphtha made fast to any wharf in the port of Philadelphia, and vessels not so loaded, lying within 150 feet of such vessels so loaded and made fast to or lying within that distance of a wharf where petroleum is kept or stored are not allowed to have aboard any fire or light, lighted cigar or pipe of any kind whatsoever, unless by the written permission duly signed by the owner, lessee, or superintendent of the wharf at which the vessel is lying, setting forth particularly the lights and fires that may be used and the manner of using them.

All vessels carrying bulk cargo of inflammable or combustible liquids having a flash point below 150° Fahrenheit, must conspicuously display a red flag or such other signals as may be lawfully prescribed, when within waters under the jurisdiction of this board.

Explosives.—Vessels having on board a greater quantity than five kegs of gunpowder or guncotton will not be permitted to anchor north of the pier next above the Point House on the River Delaware. Locations for anchorage will be assigned upon application to the Navigation Commission.

Vessels carrying explosives shall be at all times in charge of competent persons and must display by day a red flag of at least 16 square feet at the masthead, or at least 10 feet above the upper deck, if the vessel has no mast; at night a red light will be displayed in the same positions specified for the red flag. No smoking will be permitted on or near such vessels and no person under the influence of liquor will be allowed on board any vessel, barge, or scow carrying explosives, nor will they be allowed to approach such vessels.

Vessels carrying explosives shall not carry inflammable liquids, inflammable solids, oxidizing materials, mineral acids, as defined in Federal regulations for the transportation of explosives by rail, or articles liable to spontaneous ignition, or to give off inflammable gases, unless the explosives be stored in separate rooms or otherwise so separated as to effectually prevent danger to the explosive from any of these articles or from the vapor thereof. Where blasting caps, detonating fuses, and fulminate of mercury in bulk are loaded on the same vessel with high explosives, they must be in a different compartment, the distance in a straight line from the compartment containing them to the explosives to be not less than 25 feet.

No unnecessary fires shall be permitted on vessels carrying explosives, and those fires which are deemed necessary must be properly safeguarded and must be left in constant charge of some one individual during the entire period that they are burning. No artificial light shall be permitted in the holds or compartments of any vessel which contains explosives except electric flashlights or electric lanterns or regular electric installation of the vessel. Crews must not have or carry matches, firearms, or cartridges on their persons.

No explosive will be allowed to be placed aboard a vessel until the rest of the cargo has been placed aboard the vessel and the vessel trimmed. All the necessary work in construction of floors, partitions, etc., or for the removal of any other combustibles from that part of the hold in which the explosives are to be stored, shall be completed before loading of the explosives is commenced. All decks, gangways, and holds over which explosives must be passed in loading must be freed from all loose metal or tools and carefully swept before loading is commenced and after loading has ceased.

All explosives must be handled carefully. No metal tools shall be used in loading, unloading, or handling explosives. Men engaged in loading, unloading, or handling explosives must not have or carry on their persons metal tools or bale hooks, matches, firearms, or cartridges, and they must not wear boots or shoes with iron nails or shod or strengthened with iron, unless such boots or shoes are covered with leather, felt, or some other such material. Packages of explosives must not be thrown, dropped, rolled, dragged, or slid over each other or over the decks. Dynamite boxes should be stowed topside up. Powder kegs should be loaded with seams up.

In transferring high explosives in bulk, blasting caps, detonating fuses, and fulminate of mercury from one vessel to another they must be handled by hand or regulation chute and mattress. If difference in elevation between vessels or condition of weather renders it impossible to transfer or load by hand or chute, mechanical hoists and a special crate or basket may be used. Explosives transferred in this manner must not be handled roughly. They must be hoisted and lowered carefully and only deposited or lowered on a mattress.

When an inclined chute is employed, such chute shall be constructed of 1-inch planed boards with side guards 4 inches high, extending 3 inches above top face

of bottom of chute and throughout its length fastened with brass screws. D-shaped strips or runners not more than 6 inches apart and running lengthwise of the chute must be fastened to the upper surface of the bottom part by means of glue and wooden pegs extending through the bottom part and runners. Chutes must be occasionally wiped down with waste moistened with machine oil when dynamite packages are being handled. A stuffed mattress 4 feet wide and 6 feet long and not less than 4 inches thick, or a heavy jute or hemp mat of like dimensions, must be placed under the discharging end of the chute. The incline of the chute should be such that the velocity of the packages sliding will not be great enough to cause violent shock when coming in contact with other packages or when reaching bottom of slide, or men must be stationed alongside the chutes to retard the velocity of the packages and prevent violent shocks when packages come in contact with each other or reach bottom of chute.

Broken or seriously damaged packages of explosives may be re-coopered when it is practicable and not dangerous. A broken box of dynamite that cannot be re-coopered should be reinforced by stout wrapping paper and twine, placed in another strong box and surrounded by dry, fine sawdust, or dry and clean cotton waste, or elastic wads made from dry newspaper. A ruptured can or keg should be enclosed in a grain bag of good quality and boxed or crated. Injured packages thus protected and properly marked may be forwarded.

Packages too seriously damaged to be re-coopered should not be forwarded, but set aside and the shipper notified to make disposition of them. In removing broken cases or kegs of explosives from vessels, care must be taken to remove any particles of loose explosives.

Miscellaneous.—All seagoing vessels at anchor, or when discharging, loading, laying up, or being repaired at wharf in the port of Philadelphia, are required to have and maintain a safe and convenient ladder, gangplank, or side steps for the use of persons having business on board such vessels.

Vessels anchored in the harbor of the port of Philadelphia requiring the assistance of the police or fireboats shall display their national flag, union down.

The signal for the Navigation Commission's tender shall be the international code letter "N," set in the rigging or hoisted in a conspicuous place, or three short blasts and one long blast of a steam whistle, to be continued until answered.

All steamships fitted with twin screws, while occupying berths in the port of Philadelphia, shall either display continuously on each quarter a sign, which shall be illuminated at night, marked "Danger, keep off, this vessel has twin screws," or float a spar boom around the stern which shall entirely enclose the space occupied by the propellers.

Failure to abide by regulations.—If any person or persons shall refuse or neglect to comply with the directions of the president of the Navigation Commission in matters within the jurisdiction of his office, or shall knowingly fail to comply with the rules and regulations by the commission duly made, promulgated and established as aforesaid, or if any person or persons whosoever shall obstruct or prevent the said president of the commission in the execution of his duties, such person or persons shall be guilty of a misdemeanor, and upon conviction thereof shall be sentenced to pay for each and every offense a fine not exceeding $500.

TERMINAL RULES AND REGULATIONS

The following rules and regulations are published by the South Chester Terminal & Warehousing Co.:

The terminal does not obligate itself to provide dockage, wharfage, storage, equipment, labor, or other form of service beyond the reasonable capacity of its facilities.

Charges shall become due and payable upon presentation of invoice except as hereinafter specified in clause (*b*) of this rule.

Dock superintendent must collect any and all dockage, wharfage, and receiving charges before departure of vessel, except in instances where a credit account has been opened or established by consent of the general manager.

Dockage and receiving and delivering charges are assessed against vessels and not against the cargo.

Wharfage charges, unless otherwise agreed, are assessed against cargo.

Vessels, their owners or agents desiring a berth at this terminal, shall apply to either the dock superintendent or general manager for reservations.

If application for berthing is approved and a berth assigned, confirmation shall be made of the reservation to the applicant. No change in berth assigned shall be made without the approval of the general manager.

When for reasons over which applicant has no control it is desired to cancel berthing assignments, due notice shall be given sufficiently in advance to preclude any loss of dockage charges; otherwise the terminal reserves the right to bill against the master, vessel, shipowners, or agents, to the extent of the minimum dockage charge of $25 and to use such unoccupied berth for other purposes.

The right is reserved to measure all vessels when deemed necessary for the purpose of ascertaining dock charges.

Vessels shall be moved or leave docks controlled by the terminal at the direction of the general manager. Any vessel which is not moved promptly upon notice to so move may be shifted and any expenses involved, damage to vessel or to other vessels or to the wharves or piers during such removal shall be charged to said vessel.

All vessels berthed at wharves or piers operated by the terminal shall at all times have sufficient crew to comply with orders issued by general manager and to comply with all rules and regulations of the terminal.

The master of any vessel docked at this terminal shall, upon demand, before departure of such vessel, exhibit the enrollment or license of such vessel showing tonnage and the owner, agent, manager, consignee, master, or person in command of any vessel. Upon demand, shall furnish a copy of the manifest or bills of lading for cargo discharged.

The right is reserved, without question, to audit all manifests and to use such audits as a basis for charges.

All stevedoring work performed will be subject to the rules and regulations of the terminal and the handling of the cargo to and from the terminal must be performed in a manner satisfactory to the general manager but the terminal assumes no responsibility for such work.

The terminal assumes no liability for loss or damage to freight or cargo handled or transshipped through the terminal, except property in storage after the expiration of the free time storage period, and upon which storage charges have been assessed, and then only to the extent of a warehouseman as imposed by law.

The responsibility for loss or damage to goods in storage shall not include loss caused by fire, frost, heating, leakage, evaporation, natural shrinkage, wastage or decay, animals, insects, leakage or discharge from fire-protection system or the elements; nor will the terminal be liable for any delay, loss, or damage arising from combination or strikes of any persons in their own employ or in the service of others, nor for any consequences arising therefrom.

The terminal accepts no responsibility for damages or accidents occurring when its equipment and/or operators or employees are furnished on a time basis.

All boats accepted for docking will be held at owner's risk and responsibility. This company accepts no responsibility for loss or damage to boats or crafts or contents thereof from any cause whatsoever.

In case any damage is done to a pier, or bulkhead, the extent of damage, together with the name of vessel or person causing it, must be reported in writing promptly to the general manager, giving the date and hour, and the names and addresses of the person(s) witnessing the accident.

The expense of the repair of such damage shall be paid by said vessel or person.

Settlement of claims for loss and/or damage to property, while in our possession and for which liability is admitted, shall have the full benefit of any insurance that may have been effected upon or on account of said property, so far as this shall not avoid the policies or contracts of insurance.

In such claims and adjustments due credit shall be made for the paid insurance premium thereon, to the extent and proportion of the amount involved.

Except where such service is required as the result of our negligence, all necessary cooperage, baling, and/or bagging shall be at owner's expense.

Explosives, liquid petroleum products, and other commodities deemed extra hazardous, will be received only between the hours of 8 a. m. and 5 p. m., and only upon written consent by the general manager, and must be immediately removed from the premises.

Shippers of explosives must present permit from the proper authorities before explosives shall be received on or transferred over this terminal.

The right is reserved to reject for account of the carriers we represent as agents, all freight not packed in containers suitable to withstand the ordinary handling incident to its transportation and/or storage or be repacked at the expense of shipper.

Glass, liquids, and fragile articles will be accepted only at owner's risk of breakage, leaking, and chafing.

When consignees or shippers require to be furnished with particulars of serial number, special stencilled marks, weights of packages, etc., a service charge commensurate with the work involved will be assessed.

Weighers certificates, if desired, will be furnished without charge when the property has been or will be assessed the regular and/or extra labor service charges.

Rubbish, refuse, or other materials must be removed from the pier, transit shed, bulkhead, or other area within the confines of the terminal property by the person or persons placing it there, upon demand; otherwise it will be removed at the expense of the party responsible.

The terminal's right is reserved to move freight or other material which in its judgment is likely to damage other property, to another location within the terminal or to private facilities, at the risk and expense of the owner.

No person shall make fast any rope or mooring to any wharf or dock (except to the mooring bollards, posts, or bitts provided for that purpose) or to any shed or fender piles supporting same.

When ballast, sand, gravel, coal, bricks, cinders, rubbish, or other loose matter or material that will sink is being discharged or loaded to a vessel alongside docks or wharves, or is being transferred from one vessel to another, a canvas chute or other contrivance to the satisfaction of the dock superintendent, must be used to prevent any part of such substance from falling into the water.

The roadways and platforms on the terminal property shall be kept clear for traffic and no materials, cars, or trucks shall be allowed to remain or be stored thereon.

The terminal charges do not include insurance of any character.

The terminal property is not public thoroughfare and all persons entering thereon do so at their own risk.

Orders to rail carriers for the placing, shifting, and removal of empty and loaded equipment shall be issued by the dock superintendent under the direction of the general manager.

No responsibility will be assumed for delays or demurrage on railroad cars or detention on vessels arising from any cause whatsoever.

No person shall smoke or light any matches or use or carry any open flame or lighted lantern, or permit any smoking or the lighting of any match or the use or carrying of any open flame or lighted lantern in the transit sheds, warehouses, or in the lumber storage yards.

No person shall use any donkey engine, or other steam engine, on any wharf, dock, pier, or vessel, within the confines of the terminal property in loading or unloading vessels or otherwise, without a bonnet or spark arrester attached to the smokestack of such engine to prevent sparks from flying upon the transit shed, storage yards, wharf, dock, or vessel.

PORT ADMINISTRATION

Jurisdiction over the port of Chester and all waters and water-front lands outside of the city limits of Philadelphia is vested in the Commonwealth of Pennsylvania and exercised by it, through the Navigation Commission for the Delaware River and its navigable tributaries, a departmental administrative commission in the Department of Forests and Waters of the State of Pennsylvania.

NAVIGATION COMMISSION

The Navigation Commission consists of seven members, three of whom are appointed by the Governor and two by the mayor of Philadelphia, while the secretary of the department of forests and waters of Pennsylvania and the director of the department of wharves, docks, and ferries of the city of Philadelphia serve as ex-officio members. The Governor designates one of the commissioners to be the president. Members of the Commission are appointed for a 4-year term and such further time as may be necessary until their successors are named and qualified. There is no restriction as to reappointment. A majority of the members appointed by the Governor and the mayor of the city of Philadelphia shall constitute a quorum for the transaction of business. Members serve without compensation, but are reimbursed for necessary expenses.

* * * * * * *

The Commission is authorized to employ a secretary, a civil engineer, and such clerks and other employees as may be necessary properly to transact its business, all of whom are appointed by the secretary of forests and waters. The attorney general of Pennsylvania shall furnish such advice or legal service as may be needed, or may designate counsel to represent the Commission.

The Commission is authorized to maintain adequate offices and a meeting room, the principal office of which shall be in the city of Philadelphia.

Powers and duties.—The Commission is empowered to make rules for regulating, stationing, and anchoring vessels in the Delaware River and its navigable tributaries, or at the wharves, piers, or bulkheads, or in the docks, slips, or basins extending into or on the said river and its navigable tributaries; for removing vessels in order to accommodate and make room for others, or for admitting river craft, compelling the masters of vessels to accommodate each other so that vessels shall for a reasonable time be entitled to berths next to the wharves,

piers, bulkheads until they have landed or loaded their cargoes; for regulating the speed of vessels navigating the Delaware River and its navigable tributaries between Marcus Hook and Bristol in the State of Pennsylvania; *Provided*, That such rules shall not extend to, impair, or in any way infringe on the mutual arrangements entered into by Pennsylvania and New Jersey.

The Commission is empowered to make surveys and soundings to ascertain the capacities of the river and navigable tributaries for commercial purposes, and to prepare plans therefrom, and to keep records thereof; to regulate, fix, and establish bulkhead and pierhead lines, the distance between piers, subject to the regulation of the United States Government; to adopt and promulgate rules and regulations for the construction, extension, alteration, improvement, and repair of wharves, piers, bulkheads, docks, slips, and basins; *Provided*, That these powers are not applicable to any city of the first class.

The Commission is authorized, after a hearing of the parties in interest, to regulate the services and fix the maximum rates for wharfage, cranage, and dockage at all points other than in cities of the first class.

It is the duty of the president of the commission to take the necessary action to enforce the laws of the Commonwealth and the rules and regulations made and promulgated by the Commission; and if any person or persons shall refuse or neglect to comply with the directions of the president or knowingly fail to comply with the rules and regulations of the Commission, or obstruct or prevent the execution of the president's duties, such persons shall be guilty of a misdemeanor, and upon conviction shall be sentenced to pay for each offense a fine not to exceed $500.

It is the duty of the president upon information of the sinking of any canal boat, barge, or other vessel in the channelway of the tidewaters of the Delaware or its navigable tributaries, or in any of the docks thereof, to give notice to the owner, master, or other agent thereof to raise and remove such obstruction within 10 days after date of notice, under a penalty of $100; and in case of refusal or neglect of the parties interested to raise or remove any such obstruction within the time specified, to have it raised and removed at the expense of the owner, master, or agent.

Construction licenses.—Anyone desiring to construct or alter any harbor structure wholly within the State on any waterway under the jurisdiction of the Commission must file application in writing to the president of the Commission describing the nature and extent of such structure, together with plans and specifications, showing fully the proposed construction and their evidence of title, to the property. Upon receipt of any such application the president shall give notice of the time and place of hearing such application, and if the commission after the hearing approves the plans and specifications offered in the application, shall issue a license for such construction. This rule is not applicable to cities of the first class. Licensees are further required to obtain a permit from the water and power resources board, and to pay such encroachment charges as said board may fix, according to law. No license is valid without a permit from the water and power resources board.

All licenses granted or orders made for the erection, construction, extension, alteration, or improvement provide that work shall be commenced and prosecuted with due diligence to completion, within 6 months; otherwise the license shall become void.

Whenever the owners or lessees of any facility shall fail to keep adjoining docks clean and free from obstruction, the president of the Commission, upon default for 30 days after the service of notice on such owners, or lessees, is empowered to have them cleaned and freed from obstruction, and to apportion the

expense thereof among their owners. This clause does not apply to any city of the first class.

A harbormaster appointed by the city of Chester exercises general supervision over the water front, being charged with enforcement of such city ordinances as are applicable to water-front construction, sanitation, etc. He is also in charge of city-owned landings and other water-front property.

The city of Chester exercises general police powers along the water front.

PORT LABOR AND METHODS EMPLOYED IN HANDLING CARGO

LABOR

The supply of experienced water front labor available at Chester is sufficient to meet the normal requirements of the port's commerce. When occasion demands extra labor, the stevedore contractor usually imports such labor from Philadelphia. There is an adequate supply of terminal and inexperienced labor available at all times.

Longshoremen at Chester are members of the local chapter of the International Longshoremen's Association while terminal and other labor is principally nonunion. There is no special working agreement in effect between the local longshoremen and water-front employers, but it is the general practice to abide by the conditions and wage scale set forth in the agreement between the International Longshoremen's Association and affiliated locals and the deep-water steamship lines and contracting stevedores in effect at Philadelphia.

Following is a digest of the longshoremen's working agreement in effect at Philadelphia:

Hours

Working day.—The basic working day consists of 8 hours with a 44-hour week, except that men employed at Point Breeze or out-of-city points generally work 10 hours and are paid on the basis of 8 hours straight time and 2 hours overtime, and that watchmen work a full 48-hour week. Regular working hours are from 8 a. m. to 12 noon and 1 p. m. to 5 p. m., except at Point Breeze, where the working hours are from 7 a. m. to 6 p. m. with 1 hour allowed for lunch. Watchmen work in shifts of 8 hours each. All work at other hours or during meal hours is considered overtime.

Meal hours.—Meal hours are from 6 a. m. to 7 a. m.; 12 noon to 1 p. m.; 6 p. m. to 7 p. m., and 12 midnight to 1 a. m., and men working foreign and intercoastal ships, checkers, and receiving and delivery clerks are to be paid for the full meal hour if worked any part of it, at the prevailing overtime rate, which will continue until men are relieved. Coastwise longshoremen and carloaders, however, receive only one-half hour's overtime pay if worked 5 minutes after meal hour and an hour's pay if worked 35 minutes after meal hour. It is agreed that no work shall be performed during meal hours except on arrival or sailing days, or by mutual agreement in the event of emergencies.

Holidays.—The following holidays are observed: New Year's Day, Lincoln's Birthday, Washington's Birthday, Good Friday, Decoration Day, Flag Day, Fourth of July, Labor Day, Columbus Day, November Election Day, Armistice Day, Thanksgiving Day, and Christmas Day.

Any other National holiday that might be proclaimed by Executive authority is also observed. It is understood that so far as possible only baggage and mail be handled on the Fourth of July, Labor Day, and Christmas Day. When the above-named holidays fall on a Sunday, the following Monday is observed.

Basic wage per hour

	Straight time	Overtime
Longshoremen:		
Foreign and intercoastal	$1.05	$1.60
Coastwise	.95	1.42½
Carloaders	.70	1.05
Checkers	[1] 8.25	1.60
Watchmen	[1] 4.00	.75
Receiving and delivery clerks	[1] 10.00	1.80

[1] Per day.

WORKING CONDITIONS

Foreign and intercoastal ships.—Following is a digest of working conditions applicable to longshoremen handling cargoes in the foreign and intercoastal trades:

Men handling wet hides are paid $1.20 per hour straight time and $1.75 per hour overtime.

The basic wage applies to general cargo of every description, excepting barrel, drum, or case oil handled elsewhere than at Point Breeze or out-of-city points. Men handling barrel, drum, or case oil at Point Breeze or out-of-city points for two or more consecutive hours shall receive $1.20 per hour straight time and $1.80 overtime. General cargo rates will apply if time occupied is less than 2 hours.

Oil gangs handling kerosene, gasoline, naphtha, and oil in barrels, drums, or cases at Point Breeze are paid $13.20 per day with overtime at $1.80 per hour, day or half-day, or night or half-night basis, except that when a ship is finished, time is to stop. When starting a ship, the men are to receive a half-day's pay.

Oil gangs handling general cargo at Point Breeze are to be paid oil cargo rates. When a special general cargo gang is sent to Point Breeze to handle general cargo, such men are to receive $11.60 per day with overtime at $1.60 per hour, day or half-day, or night or half-night basis, except that when a ship is finished, time is to stop. When starting a ship the men are to receive a half-day's pay.

Oil gangs handling barrel, drum, or case oil out of city are paid on the same basis as is applicable at Point Breeze.

Men handling grain are paid at the rate of $1.15 per hour straight time and $1.70 overtime. Work conducted at Camden is to be paid for at the same rates and under the same conditions as for work in Philadelphia, except that the men are to receive 25 cents per day for traveling expenses unless transported by the employer.

Men handling general cargo at out-of-city points are paid $12.10 per day with overtime at $1.65 per hour, day or half-day basis. In either case time is to stop when ship is finished. When starting a ship the men are to receive a half-day's pay. Night work is paid on the hourly overtime basis except that when Philadelphia men are sent to an out-of-city point to work a ship only at night, they are to receive at least a half-night's pay.

Men handling explosives are paid $1.65 per hour straight time and $2.70 overtime.

Men handling cargo actually damaged by water or fire are to be paid the rate applicable to explosives.

Men definitely ordered out on week days at other than regular shaping times will be entitled to a minimum of 2 hours pay at the prevailing rate whether they work or not. This section does not apply to cases where less than 2 hours on week days or week nights are required to finish a ship or a hatch.

When fresh men are specifically ordered out, or employed at the 6:55 p. m. shape, to work at night on a vessel which has not previously worked, and when men are ordered out to work on Sundays and holidays, they are to receive a minimum of 4 hours' pay at the prevailing rate whether they begin or not, except when work is impractical owing to weather conditions. Except in the case of fresh men specifically ordered out or employed at the 6:55 p. m. shape to work at night on a vessel which has not previously worked, this paragraph is applicable to those men specifically ordered out at times other than regular shaping hours.

Men working Saturday forenoon will be entitled to a minimum of 4 hours' pay between 8 a. m. and 12 noon. If work has to be discontinued during this period on account of weather conditions, the men will be entitled only to a minimum of 2 hours.

Men employed at 7 a. m. on Saturday will be entitled to 1 hour overtime in addition to the above minimums.

When men are knocked off from work 5 minutes after the hour or later, they are to be paid for one-half hour. If they knock off 35 minutes after the hour, they are to be paid for 1 hour. When necessary, gangs are to knock off 10 minutes before quitting time to replace hatch covers. Under no circumstances are men to leave a ship, or fail to return if ordered back, without replacing hatch covers.

The employer has the right to work ship by any practical method, also to name number of men in gangs, except on general cargo, and likewise how men are to be distributed on ship, dock, or lighter. The size of drafts or truck loads to be at discretion of employer or his representative.

Minimum number of men in gang when discharging or loading general cargo to or from the pier shall be 20 men, not less than 8 holdmen discharging and 8 holdmen loading. This clause is not to apply to handling cork, burlap, newsprint, and logs where hooks are used, heavy lifts, sugar at sugar refineries or warehouses, lumber, rubber, tin plate, and sheet steel in packages, or to work at Ford's plant at Chester, Pa., or to similar conditions that may be agreed upon. This does not apply to handling cargo to or from open top cars or open lighters. Men working inshore may be transferred to other gangs should their own gang go offshore. However, they must return to their original gang when work is resumed inshore.

Regular shaping times shall be 7:55 a. m., 12:55 p. m., and 6:55 p. m. Employers may also designate a place and hour to shape men for future employment, the men to be given checks or some other means of identification that they are to work if they arrive at the job at the starting time.

When the employers elect to transport the men to a ship to start work at a designated hour, the men shall shape at a convenient point at least 30 minutes before the designated hour, for boarding trucks and other conveyances. Pay of the men to commence at the designated hour and place whether work begins or not, unless work is impractical owing to weather conditions.

When work is performed at out-of-city points and transportation to and/or from the ship requires more than 30 minutes, the men shall be paid for any actual additional transportation time (over and above 30 minutes at each end of the working period) at the straight-time general-cargo rate of $1.05 per hour. Men shall shape at any earlier designated hour in order to begin work at the appointed time.

If men are so transported and weather conditions prevent working cargo or docking vessel (after arrival off pier), men shall receive 2 hours' pay at the prevailing rate.

If the employer transports men to and/or from work during hours for which men are already being paid, no travel time shall be allowed.

Arbitration of Disputes

The following provision relative to the settlement of disputes and the interpretation of the working agreement is incorporated in the agreements:

In the event of any dispute or controversy during the life of this agreement as to the interpretation of same, the men shall continue to work pending an adjustment of the trouble as follows:

Matter in dispute to be submitted to a committee of four, two of whom shall be representatives of the employers and two being representatives of the employees; a decision of the majority of this committee to be final and binding. In the event of failure on the part of this committee of four to reach a satisfactory decision, then the committee of four shall proceed to select a fifth man as chairman, which man must be satisfactory to both sides, and a decision of a majority of the committee so augmented shall be final and binding.

METHODS EMPLOYED IN HANDLING CARGO

Most of the cargo handled at Chester and nearby points is handled at the piers or wharves of the industrial establishments located along the water front. At most of these plants cargo is loaded or unloaded by ship's gear, although there are a number of locomotive cranes and derricks available when the use of such pier equipment is required.

The Baldwin Locomotive Works wharf at Eddystone, Pa., is equipped with two heavy-duty cranes of 60 and 50 tons' capacity, respectively. This facility is used exclusively by the Baldwin Co. to handle its own products, although in case of emergency, use of the wharf and equipment might be obtained by special agreement for car-to-ship movements.

Wood pulp is received principally by the Scott Paper Co. at its two wharves where transfer between ship and shore is generally done by ship's gear while barges and lighters are unloaded by a 2-ton electric derrick. A conveyor system and hand trucks are used to handle cargo from shipside to warehouse.

At the Ford plant, where the greater part of the exports of automobiles, trucks, tractors, and parts are handled, cargo is transferred from the assembly plant by a special conveyor system extending the length of the wharf. Cargo may be handled between ship and shore by ship's gear, ship's gear in conjunction with cargo masts, or locomotive cranes. In addition to handling cargo direct from conveyor to ship, railroad tracks on the pier permit direct interchange between rail and water. Vessels loading Ford products are also allowed to receive other cargo provided such cargo is handled direct between rail and ship.

Other than small municipally owned piers or wharves which are utilized by river and inland waterway vessels, the South Chester Terminal & Warehousing Co. is the only facility open to general public use. At this terminal cargo may be handled between ship and

shore by ship's gear or by crane. There are two cranes available, one of which is capable of handling up to 30 tons while the other has a maximum capacity of 15 tons. All cargo is handled direct between ship and car, including that which is held in transit shed prior to arrival or after departure of vessel. The location of the transit shed inshore from the pier coupled with the lack of decking and walkways has made it necessary to handle such cargo direct between ship and open top cars which are shunted between transit shed and shipside. All cargo is handled to and from shipside by terminal labor, unless cars are received from or destined to interior territory direct. The Pennsylvania Railroad and the Reading Co. both have access to this facility over terminal-owned tracks.

All other facilities at Chester and other points south of Philadelphia are engaged solely in handling materials and products of industries which own and operate them. Some have developed special handling equipment while others use ship's gear exclusively.

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PORT AND TERMINAL SERVICES AND CHARGES

PILOTAGE

Vessels destined to Chester and other points on the Delaware River and Bay between Philadelphia and the sea are subject to the following pilotage rules and charges:

Vessels subject to pilotage.—Every ship or vessel arriving from or bound to any foreign port or place is obliged to receive a pilot, except American vessels solely laden with coal mined in the United States; *Provided:* That a ship or vessel inward bound to any port or place on the river Delaware, which is not spoken or offered the services of a pilot outside a straight line drawn from Cape May Light to Cape Henlopen Light, is exempt from the duty of taking a pilot, as well as from the duty of paying pilotage, or any penalty whatsoever.

Vessels exempt from pilotage.—All ships or vessels employed in or licensed for the coasting trade, having on board a pilot duly licensed by the Federal Government to operate in these waters, are exempt from the duty of employing a pilot or paying pilotage, or any penalty whatsoever, but any ship or vessel voluntarily taking a pilot shall pay the same fees for pilotage as are prescribed in case of a vessel bound to or from a foreign port.

Delaware Breakwater pilotage.—Every ship or vessel liable to pilotage bound to the Delaware Breakwater for orders is obliged to receive a pilot provided she is spoken or a pilot offers his services outside of a straight line drawn from Cape Henlopen Light to Cape May Light. Every such ship or vessel shall pay as a fee a sum equal to half the pilotage to the port of Philadelphia. Vessels shall also be obliged to receive a pilot and pay the same pilotage fees when outward bound from the breakwater. If such ship or vessel, without discharging her pilot, proceed to the port of Philadelphia, or any other port or place on the Bay or River Delaware, only one full pilotage fee shall be paid, in addition to the fee for detention; provided, however, that if the pilot bringing such ship or vessel to the breakwater be there discharged and the ship or vessel afterwards proceeds to Philadelphia or any other port or place on the Bay or River Delaware, she shall make the usual signal for a pilot and continue to make such signal until reaching Brandywine Light, and if spoken by or offered the service of a duly licensed Pennsylvania pilot, before reaching Brandywine Light, shall be obliged to employ such pilot and pay him the regular rates in addition to the fee paid for bringing her into the breakwater, and for detention, if any.

Detention.—In case a pilot having charge of a vessel and while conducting said vessel be detained, either by order of the master, owner, or consignee, or by ice or any other unavoidable circumstance, not personal to himself, he shall receive compensation for such detention at the rate of $3 per day for each day so detained, commencing at a period of 24 hours from the time the detention first occurred.

Either Pennsylvania or Delaware pilots are taken to or from any point on Delaware Bay or River, and the fees in either case are the same. Both Pennsylvania and Delaware pilots will be found aboard one vessel, either steamer or auxiliary schooner, which will be found cruising outside the entrance of the bay.

Pilotage fees are based on a charge of $2 per half foot for vessels drawing 12 feet or less, and $2.50 per half foot for vessels drawing over 12 feet. An increase of 10 percent over these fees is charged when a vessel is spoken east of Five Fathom Bank Lightship or north of Hereford Inlet Lighthouse, or south of Fenwick Island Lighthouse, and a deduction of 10 percent is made when a vessel is spoken inside of a line joining Cape May and Cape Henlopen Lighthouses.

Pilotage rates on the Delaware Bay and River

Draft	Inward			Outward
	If spoken east of Five Fathom Bank Lightship, or north of Hereford Inlet Lightship, or south of Fenwick's Island Light	If spoken inside of Five Fathom Lightship and outside of line drawn from Cape May Light to Cape Henlopen Light	If not spoken until inside of line drawn from Cape May Light to Cape Henlopen Light	
8 feet	$35.20	$32	$28.80	$32
9 feet	39.60	36	32.40	36
10 feet	44.00	40	36.00	40
11 feet	48.40	44	39.60	44
12 feet	52.80	48	43.20	48
13 feet	71.50	65	58.50	65
14 feet	77.00	70	63.00	70
15 feet	82.50	75	67.50	75
16 feet	88.00	80	72.00	80
17 feet	93.50	85	76.50	85
18 feet	99.00	90	81.00	90
19 feet	104.50	95	85.50	95
20 feet	110.00	100	90.00	100
21 feet	115.50	105	94.50	105
22 feet	121.00	110	99.00	110
23 feet	126.50	115	103.50	115
24 feet	132.00	120	108.00	120
25 feet	137.50	125	112.50	125
26 feet	143.00	130	117.00	130
27 feet	148.50	135	121.50	135

TOWAGE

The following standard rates, terms, and conditions are generally quoted by tugboat companies operating on the Delaware River for services rendered between Wilmington, Del., and Trenton, N. J. Charges for services performed by the towing company which are not provided for in the tariff are generally determined by mutual agreement between the towing company and the vessel or its agent on a contract or time basis.

As a general rule tugs are not required to dock or undock vessels at Chester or in moving between Delaware River points and the sea. Most vessels traverse the river and bay under their own power.

Schedule of rates, terms, and conditions

	Each tug
For assisting steamer between Allegheny Ave., Port Richmond, and Windy Point, as follows:	
From stream or anchorage to dock between the above points, or vice versa	$43
From dock to dock between the above points, or vice versa	56
From dock or anchorage, Delaware River front, to or from—	
League Island, dock or anchorage, or Mantua Creek Anchorage	75
Bridesburg	68
Girard Point	75
Point Breeze or Gibson Point	100
Harrison's Wharf, Grays Ferry	137
Hog Island, Paulsboro, or Thompson's Point	100
Chester, Thurlow, or Marcus Hook	118
Marine Terminal, Wilmington, or Deepwater Point	187
Burlington, Roebling	125
From Philadelphia, Delaware River front, to Marine Terminal, Trenton, or vice versa	187
From Paulsboro, Chester, Marcus Hook to Marine Terminal, Wilmington, or Deepwater Point, or vice versa	187
For all services to or from points between Allegheny Ave. and Pennsylvania R. R. bridge, each tug $12.50, in addition to above rates.	
For assisting steamer from anchorage at League Island or Mantua Creek to—	
Girard Point, or vice versa	50
Point Breeze, or vice versa	68
Gibson's Point, or vice versa	75
Harrison's Wharf, Grays Ferry, or vice versa	112
Hog Island, Paulsboro, or Thompson's Point, or vice versa	93
Chester, Thurlow, or Marcus Hook, or vice versa	112
Deepwater Point or Marine Terminal, Wilmington, or vice versa	175
For assisting steamer from Girard Point to—	
Point Breeze, or vice versa	68
Gibson's Point, or vice versa	75
Hog Island, Paulsboro, or Thompson's Point, or vice versa	106
Chester, Thurlow, or Marcus Hook, or vice versa	125
Deepwater Point or Marine Terminal, Wilmington, or vice versa	187
For assisting steamer from stream or anchorage opposite berth, into berth at—	
Hog Island, Paulsboro, or Thompson's Point, or vice versa	81
Eddystone, Chester, Thurlow, or Marcus Hook, or vice versa	93
For assisting steamer from dock to dock at points between—	
A—Paulsboro and/or Hog Island and/or Marcus Hook, or vice versa	112
B—Dock to dock at Paulsboro	100
For assisting steamer from stream or anchorage off to Deepwater Point or Marine Terminal, Wilmington, or vice versa	156
For assisting steamer in moving at Girard Point	62
For assisting steamer in moving at Point Breeze	68
For assisting steamer from Point Breeze to—	
Hog Island, Paulsboro, or Thompson's Point, or vice versa	143
Chester, Thurlow, or Marcus Hook, or vice versa	156
Deepwater Point or Marine Terminal, Wilmington	206

It is requested that all orders for tugboat services shall be given between 8 a. m. and 5 p. m. on business days and should be definite orders for steamer's movements.

For assisting a steamer by towing, attendance or furnishing steam, $18.75 per hour for each tug when services are rendered exclusively at or above Marcus Hook, and $31.25 per hour for each tug when services are rendered in whole or in part below Marcus Hook, the time chargeable to include in addition the running times of tugs from and to tug stations at Philadelphia.

If tugs are sent to render services to a steamer and the steamer has not arrived or for any cause is not ready, detention of the tugs while waiting shall be paid at the rate of $15 per hour for each tug unless the tugs are discharged promptly upon arrival; and if they are so discharged, the running times of the tugs from and to tug stations at Philadelphia shall be paid at the rate of $18.75 per hour for each tug if the place to which they were ordered is at or above Marcus Hook, and $31.25 per hour for each tug if the place to which they were ordered is below Marcus Hook.

If tugs are ordered and sent to render service to a steamer which performs the movement without their assistance, the tugs shall be paid at the rates in this schedule applying to the particular services for which they are ordered, the same as if the tugs had performed the services; provided, however, that the tugs report when ordered.

When services to a steamer require the tugs to come into service or be operated before 7 a. m. or after 5 p. m. the tugs shall be paid a further charge of $12.50 per hour net for each tug in addition to the regular rates in this schedule applying to the particular services.

When it becomes necessary for tugs engaged in assisting a steamer to shift such other vessels as elevators, railroad floats, coal boats, barges, lighters, or scows in order that the steamer may be properly moved, placed, or handled, an additional charge shall be paid of $12.50 per tug for each tug engaged in such shifting of each of such other vessels.

For all services on Sundays or Holidays each tug shall be paid one and one-half the rates in this schedule applying to the particular services. Sunday or holiday work shall be optional with the tugs and their owners, agents and charterers who shall not be liable for any inability or refusal whatsoever to perform Sunday or holiday work or for any delay or loss to steamer and concerned resulting from the same.

If tugs are ordered into service by or in behalf of a steamer for a movement or service expected to be performed or required on a Sunday or holiday and the movement or service is not performed or required by the steamer, the tugs shall be paid at the Sunday and holiday rates in this schedule applying to the particular services, the same as if the tugs had performed the services.

When ice interferes in any respect with the movements of the tugs or the steamer, the above rates in this schedule shall not apply, but the rates shall then be as follows: For all tug services rendered exclusively at or above Marcus Hook, $25 per hour for each tug, the minimum total charge per tug to be not less than the rates in preceding paragraphs hereof applying to the particular services in clear water; and for all tug services rendered in whole or in part below Marcus Hook, such special rates as may be mutually agreed upon by and between the tugs and the steamer at the time.

Whenever the master or other officer of any tug or any licensed pilot goes on board a steamer to assist her movement or handling, he becomes and continues to be solely the servant of said steamer and her owners in respect of all acts done by him and all orders given by him to any tugs engaged or to said steamer or otherwise in the movement or handling of said steamer; and none of the tugs or

their owners, agents or charterers shall be responsible or liable for any claims or damages caused by or resulting from such acts or orders.

The regular charge made by the master or other officer of a tug or by any licensed pilot for going on board another vessel and directing or assisting in directing her movement or handling shall be paid by such other vessel directly to such master or other officer or licensed pilot or to his agent.

For all services not specifically covered by stated rates in this schedule, such special rates or compensation shall be charged as may be mutually agreed upon by the tugs and the steamer or steamers at the time or times.

Subject to 30 days after date of written notice prices named herein are subject to adjustment in proportion to the increase in operating expenses due to changes in laws or regulations and changes in working conditions of labor and labor costs in all branches.

The furnishing of any towage service shall not be construed to be a personal contract, and it is understood that we shall have the benefit of the exemptions from and limitations of liability contained in the United States Limited Statutes.

The tugs and their owners, agents and charterers shall not be responsible or liable for any expenses, losses, damages or claims whatsoever caused by or resulting from their nonperformance of services due to strikes, labor difficulties, breakdowns, accidents or any causes beyond their control.

The above rates, terms, and conditions supersede all previous schedules or rates, terms, and conditions, and are effective from January 1, 1938.

DOCKAGE

The South Chester Terminal & Warehousing Co. levies the following dockage charges for the privilege of berthing or making fast to its facilities:

Vessels over 200 feet in length:

Berthing to load or unload cargo, 2 cents per net registered ton.

Minimum charge is $25 per day.

Vessels under 200 feet in length (lighters, barges, and boats):

150 feet in length, $5 per day.

151 to 200 feet in length, $8 per day.

Exceptions

Liquid petroleum products: Vessels receiving or discharging liquid petroleum products will be assessed dockage charges as follows:

2 cents per net registered ton for first 200 tons.

½ cent per net registered ton for each ton in excess thereof.

Vessels docking between the hours of 5 p. m. and 7 a. m. and not working cargo during that time will be assessed dockage beginning with the first 7 a. m. following the day of berthing. This rule applies only on vessels of 200 feet or more in length.

Coastwise vessels discharging cargo are subject to a minimum dockage charge of $50 per day of 24 hours or fraction thereof.

Offshore lighters and boats: No dockage charge is levied against vessels engaged in offshore work when alongside of vessel with which they are working at dock. This rule applies only from 24 hours before arrival to 24 hours after departure of vessels with which they are working.

Lighters and boats will be allowed alongside of dock only when space is available and must depart upon notice from the dock superintendent.

WHARFAGE

The following charges and conditions are in effect at the South Chester Terminal & Warehousing Co.:

Wharfage charges are assessed against the cargo which passes over the wharves or docks, and are in addition to dockage and handling charges.

	Per net ton
Export, import, coastwise, and intercoastal traffic originating at or destined to points in the Chester-Marcus Hook districts:	
Cargo discharged into or loaded from trucks, open cars, or transit sheds	$0. 15
Cargo discharged into or loaded from closed cars	. 25
Bulk sulphur originating at or destined to points in the Chester-Marcus Hook districts discharged into or loaded from open cars	. 20
Traffic originating at or destined to Essington-Eddystone, Pa.:	
Cargo discharged into or loaded from railroad cars or other vehicles	. 10
All other traffic:	
Less carload freight	. 40
Cargo loaded into or discharged from barges or lighters (net or gross ton as rated)	. 05
Wrought pipe loaded into or discharged from barges or lighters	. 15
Lumber and lumber products, when handled by equipment other than supplied by terminal	. 25
Petroleum and petroleum products in bulk, per barrel of 42 gallons	. 005

Ship's stores handled over wharf and fuel over ship's side of vessels loading or discharging cargo are not subject to wharfage charges unless receipted for by terminal employees.

LOADING AND UNLOADING

Loading and unloading cars.—The Pennsylvania Railroad, Tariff 1351–B, I. C. C. 1909, applicable at Chester, Pa., provides that except on lumber intercoastal freight moved via the Panama Canal and traffic destined to or received from foreign ports and handled over carrier's piers or the piers of the South Chester Terminal & Warehousing Co. which pays the Pennsylvania Railroad Co. and its connections 10 cents per 100 pounds or $2 per ton of 2,000 or 2,240 pounds, as the case may be, or higher will be loaded from piers to cars or unloaded from cars to piers at no extra charge.

On similar traffic, except lumber, which pays a rate less than 10 cents per 100 pounds or $2 per ton of 2,000 or 2,240 pounds, there will be an additional charge for loading or unloading of 55 cents per ton of 2,000 or 2,240 pounds, as the case may be, when the railroad performs such service. The combined freight and loading charge in such cases shall not exceed 10 cents per 100 pounds or $2 per ton.

The above rules are not applicable to traffic loaded in open cars at uncovered piers, or unloaded at uncovered piers from open cars, or on freight in bulk (except bulk clay, Cornwall stone and ores), or pieces and packages exceeding 3 tons in weight, or on pieces of extraordinary dimensions, or upon pieces or packages of extraordinary measurement or size compared with the weight thereof.

On intercoastal traffic when arrangements can be made for handling of pieces or packages exceeding 3 tons each in weight, pieces of extraordinary dimensions, or pieces or packages of extraordinary measurement or size as compared with the weight thereof, the rule will apply, when the charge for handling from or to car does not exceed 3 cents per 100 pounds. Any amount over 3 cents per 100 pounds must be assumed by the shipper, consignee, or owner of the property. Such arrangements must be made with the railroad company and information furnished giving a full description of the property, including dimensions, weight, place or steamship line to be delivered to or received from, and the name of the shipper or consignee.

On foreign and intercoastal lumber, all kinds (including logs, wooden poles, piling, and ties) which pays a freight rate of 10 cents per 100 pounds or $2 per 2,000 pounds or higher, an additional charge of 39 cents per 2,000 pounds is assessed for loading on open cars and 83 cents per 2,000 pounds for loading into box cars, whether handled direct from vessels to cars, or from piers to cars, or received from vessels by lighters or car floats, or received from intermediate storage.

On foreign and intercoastal lumber all kinds (including logs, wooden poles, piling, and ties) which pays a rate of less than 10 cents per 100 pounds or $2 per ton of 2,000 pounds, an additional charge of 55 cents per 2,000 pounds is assessed for loading on open cars and 83 cents per 2,000 pounds for loading into box cars, whether handled direct from vessels to cars, from piers to cars, or received from vessels by lighters or car floats, or received from intermediate storage. The combined freight and loading charge however, not to exceed 12 cents per 100 pounds or $2.40 per 2,000 pounds for loading on open cars.

On coastwise traffic, except lumber all kinds (including wooden logs, poles, piling, and ties) in carloads, freight in bulk, and all traffic loaded or unloaded from or to open cars at uncovered piers, received at or delivered to Pennsylvania Railroad piers which pays a freight rate of 10 cents per 100 pounds or $2 per ton of 2,000 or 2,240 pounds as the case may be, or higher, the rate will include loading or unloading from piers to cars or cars to piers.

Coastwise traffic, subject to the same exceptions named above, which pays a freight rate of less than 10 cents per 100 pounds or $2 per ton of 2,000 or 2,240 pounds is assessed an additional charge of 55 cents per ton which must be added to the freight rate. The combined freight and loading charge however, not to exceed 10 cents per 100 pounds or $2 per ton.

Loading and unloading vehicles.—The South Chester Terminal & Warehousing Co. assesses a charge of 65 cents per 1,000 feet for loading lumber on trucks or teams. Charges for loading or unloading all other cargo to or from vehicles other than rail cars will be furnished upon request by the terminal.

HANDLING

The South Chester Terminal & Warehousing Co. assesses a handling charge on cargo moved into or out of storage to or from point of rest on the dock where it has been deposited or will be picked up by the stevedores in discharging or loading vessels. It includes ordinary sorting, piling, and trucking. Rates are determined by the quantity and type of commodity to be handled and will be quoted by the terminal company upon request.

The following handling charges are assessed on lumber, lath, and shingles:

Lumber

Handling—	*Per 1,000 feet*
From open storage to dock for vessels	$1. 50
From closed storage to dock for vessels	2. 00
Back handling (when performed by terminal equipment)—	
To place of rest in open yard for truck delivery	1. 00
To place of rest covered protection for truck delivery	1. 25
To open storage, piled	1. 50
To open storage, piled by crane	1. 25
To open storage, piled and stripped (owner to furnish strips)	1. 75
To open storage, sorted and piled	2. 00
To covered storage, piled	2. 00
To covered storage, piled and stripped	2. 25
To covered storage, sorted and piled	2. 50
To place of rest for box car loading	. 50
Shingles:	*Per bundle*
To place of rest for truck delivery	$0. 02
To open storage—piled	. 025
To place of rest for box car loading	. 015
To place of rest from open or covered storage for box car loading	. 015
Lath:	
To place of rest for truck delivery:	
100 to bundle	. 015
50 to bundle	. 01
To open storage—piled:	
100 to bundle	. 015
50 to bundle	. 01
To place of rest for box car loading:	
100 to bundle	. 015
50 to bundle	. 01

STORAGE CHARGES, RULES AND REGULATIONS

South Chester Terminal & Warehousing Co.

Free time.—The South Chester Terminal & Warehousing Co. permits cargo to remain on its facilities free of demurrage and storage charges for the following periods, when space is available:

	Days
Coastwise traffic	3
Intercoastal traffic	5
Foreign traffic, except nitrate of soda, cork and bulky commodities	15
Foreign nitrate of soda, cork and bulky commodities	5

Free time is allowed only during the period named immediately preceding a vessel's loading or immediately following a vessel's discharge. In computing free-time period, Sundays and full legal holidays are excluded. The days vessels are loading or discharging cargo are not counted as storage days. Where it is evident that it is impracticable to handle cargo within the free-time periods named above due to conditions over which the consignee has no control, an extension of the free-time allowance may be made by the general manager of the terminal.

Storage and demurrage.—All cargo remaining on the pier or wharf after the expiration of free time is subject to a demurrage or storage charge until removed by the shipper or consignee. Storage charges on general cargo are based on type of commodity and space occupied, and are exclusive of any sorting, piling, wharfage, handling or trucking charges. Rates will be quoted by the terminal on request.

Demurrage is assessed on inbound lumber after expiration of free time at the rate of 10 cents per 1,000 feet per day or, on order from owner, lumber will be placed in open storage or closed storage and an additional charge of 25 cents per 1,000 feet for crane piling, or 50 cents per 1,000 feet for hand piling will be assessed.

The following storage charges on lumber are published by the South Chester Terminal:

	Per month	
	Open storage	Covered storage
Lumber, per 1,000 feet	$0.25	$0.50
Shingles, per bundle	.015	.02
Lath, per bundle of 100	.01	.02
Lath, per bundle of 50	.005	.01

Storage charges will not be collected in instances where delay in delivery of freight is clearly due to error on the part of the terminal's employees, or on account of delays for which customs officials may be responsible. In the latter case, certificates must be surrendered from customs officials giving reason for delay.

Railroad Storage Provisions

The following rules, regulations and charges governing free time allowances and storage on import, export, intercoastal and coastwise freight are named in Pennsylvania Railroad's tariff 1351–B; (I. C. C.–1909), and generally concurred in by the Reading Co.'s tariff I. C. C.–1623.

Import freight.—On freight from foreign countries free time periods will be computed from the first 7 a. m. following the day upon which the carrying vessels completes discharging. Sundays and full legal

holidays are excluded from free-time periods and when the latter fall upon Sunday the succeeding Monday will be excluded.

Package, piece and bulk freight except wood pulp, crude rubber, pig iron, iron ore, manganese ore, and chrome ore when in transit via the Pennsylvania Railroad will be held free of charge at owner's risk for 5 days. Wood pulp and crude rubber are allowed 15 days free time while pig iron, iron, manganese and chrome ores are subject to standard demurrage rules and charges as shown in Agent B. T. Jones Tariff 4–R, I. C. C.–3072. After expiration of free-time periods named above the following storage charges will be assessed:

	Per 100 pounds
Wood pulp and crude rubber:	
First 10 days or fraction thereof	$0. 01
Each succeeding 10-day period or fraction thereof	.00½
Other commodities, except pig iron, and iron manganese and chrome ores:	
A. On traffic with a minimum weight in the official classification of 24,000 pounds or higher:	
First 30 days or fraction thereof	.05½
Each succeeding 15-day period	.01¾
B. On traffic with a minimum weight in the official classification lower than 24,000 pounds:	
First 30 days or fraction thereof	.09
Each succeeding 15-day period	.03¼

Storage charges will cease when shipping instructions are given the railroad company.

Export traffic.—Carload freight shipped for export covered by local export bills of lading and actually exported will be held free of demurrage and storage charges for 10 days while less carload freight will be held free of charge for 5 days, exclusive of date of arrival.

Carload freight covered by through export bills of lading issued in connection with the steamship lines and operators named in the tariff will be held in warehouses or at option of carriers, in cars, free of charge at the port of exit for a 15-day period exclusive of date of arrival, after which period storage or demurrage charges are applicable. In connection with carload freight moving on through bills of lading via lines named in the tariff, the following rules are applicable:

(1) In the event of omission or failure of the steamship company or operator to clear freight on any vessel, or during any period for which specifically booked, or to order freight within the 15 days free time, all demurrage or storage charges accruing shall be paid by the steamship company or operator.

(2) If the rail carriers fail to transport shipment to the port in time to clear on steamer, or to clear during the period for which specifically booked, demurrage or storage charges will not apply until the announced date of the steamer on which it is again booked, after which date demurrage or storage charges will apply. NOTE.—If freight is booked to be lifted during a certain period (not booked for a vessel to sail on a specific date) it will be understood that the railroad shall have cargo ready for delivery at the port on the first day of such period.

(3) In the event demurrage or storage charges should accrue due to interference with transportation by shipper or his agents through the issuance of orders to

hold such freight or to divert it, or due to delay in securing or error in preparing proper export documents, or for any other cause for which shipper or his agent may be responsible, they shall be collected and paid by the shipper.

(4) Where rail carriers deliver freight at port more than 15 days prior to date booked, the excess time shall be considered as additional free time.

(5) Demurrage and storage charges will cease to apply on and after receipt by the railroad from steamship company or operator of order for delivery, provided steamer is ready to accept cargo. If freight is to be delivered to a steamship pier, not operated by the carrier, said charges will cease to apply on delivery to the pier.

Where carload freight covered by through export bills of lading moves via lines other than those named in the tariff the following exceptions to the above rules are applicable:

(1) In the event of omission or failure on part of steamship company or operator to clear freight on any vessel, or during any period for which specifically booked, or to order freight within 10 days free time, all demurrage or storage charges accruing after the free time period of 10 days shall be paid to the rail carrier by the steamship company or operator before delivery of the freight to the steamship line will be made.

(2) Where rail carrier delivers freight at port more than 10 days in advance of the date for which the freight is booked, such excess time shall be considered as additional free time.

(3) Freight will be held in warehouse, or, at option of carriers in cars free of charge at the port of exit for a period not exceeding 10 days, exclusive of date of arrival, after which storage or demurrage charges will apply.

After the expiration of free time as shown above, a storage charge of 1 cent per 100 pounds is assessed for the first 10 days or fraction thereof and ½ cent per 100 pounds for each succeeding 10 day period, except that on export scrap iron and steel, carloads the storage rate will be 1 cent per 100 pounds for the first six storage periods of 5 days each after expiration of the free time allowance of 10 days when moving by lines other than named in the tariff and 15 days when moving on through export bills of lading via lines named in the tariff; 1¾ cents per 100 pounds for the next six periods, and 2¼ cents per 100 pounds for all succeeding periods.

Domestic Shipments

Domestic freight for transshipment by vessel when on local bills of lading will be held free of demurrage and storage charges for a period not exceeding 5 days from date of arrival, exclusive of such date of arrival. After the expiration of the free time period the following storage charges are applicable:

	Per 100 pounds
First 10 days or fraction thereof	$0.01
Each succeeding 10 days or fraction thereof	.005

MISCELLANEOUS CHARGES

The following charges are published by the South Chester Terminal & Warehousing Co.

Mechanical Equipment

	Per hour
Steam crane with operator and fireman	$5.00
Gasoline crane with operator	3.50

An additional charge of $1.50 per hour is made when cranes are used between 5 p. m. and 8 a. m. and for Saturday afternoons, Sundays and holidays.

When for convenience of the terminal the steam crane is furnished the rate applicable to the gasoline crane will be charged. The minimum charge is based on 1 hour's work.

Sorting.—An extra charge is made on shipments requiring sorting, according to marks, kinds, brands, in accordance with labor service charges.

Car blocking, staking and dunnage.—Loading charges do not include cost of car stakes, lumber, or other material necessary for bracing loads on or in cars. When such material and labor are necessary the cost of same plus 15 percent will be charged against the shipment.

Lights.—Electric lights are supplied for $1 per light per night or fraction thereof.

Power.—Electric current for power purposes is supplied at the rate of 10 cents per kilowatt-hour.

Water.—Fresh water will be supplied to vessels at the rate of 30 cents per 100 cubic feet, minimum charge $1. If furnished before or after regular working hours an extra charge of 75 cents per hour is made for the attendant.

Receiving and delivering charges.—Receiving and delivering charges of 20 cents per net ton are assessed against vessels for the service of acting as agents for vessels in the receipt and delivery of cargo. These charges include the use of dock in the assembly and delivery of cargo prior to and after departure of vessels in accordance with the free-time provisions.

Handling lines.—When lines are handled in and out for ships a charge of $8 will be made.

STEAMSHIP SERVICES, RATES, AND RATE CONFERENCES

STEAMSHIP SERVICES

There are no regularly scheduled steamship services to or from the port of Chester in the foreign or intercoastal trades. However, the regular line services listed below which serve the port of Philadelphia will, in most cases, call at Chester and other points on the Delaware River below Philadelphia whenever sufficient cargo is offered. In addition to these regular liner services to and from the Delaware district there are a number of steamship lines which call at irregular intervals to load or discharge cargo at Chester and other Delaware River points. A number of the industries located on the Delaware River are served by regular industrial carriers.

There are few direct sailings from the Delaware River in either the foreign or domestic trades, since most vessels usually call at other Atlantic ports to complete loading. Likewise, in-bound carriers usually discharge cargo at other ports before proceeding to the Delaware. However, when sufficient or full cargoes are available some of the lines will adjust their regular routing so as to provide direct service from the Delaware.

The following is a description of the regular services available to shippers from the Delaware River district.

Foreign trade.—Regular communication with the Far East is maintained by 14 lines of which the American Pioneer Line, the Panama Far East Line, and a joint service of the Isthmian and Matson Lines operate under the American flag. The American Pioneer and the Panama Far East Lines operate monthly services to China and the Philippines while the Isthmian-Matson Line maintains fortnightly sailings to Hawaii. Foreign flag lines schedule sailings ranging from one to three a month to Japan, China, and the Philippines.

Of the two services operating to ports in the Straits Settlements, India, Persian Gulf, Red Sea, and East Africa, the American Pioneer Line which is American owned and operated offers nine sailings per year to Karachi, Bombay, Madras, Calcutta, and Rangoon. The other line which is foreign provides a monthly service to various points between Suez and the Straits Settlements.

Monthly sailings to Australia and New Zealand are scheduled by three companies, two of which are American. The American Pioneer Line, operating American flag vessels calls at Brisbane, Sydney, Fremantle, Melbourne, and Adelaide. The American & Australian Line,

an American company operating foreign flag vessels schedules the above ports and in addition calls at principal ports in New Zealand.

The American South African Line operates American flag vessels to Capetown, East London, Port Elizabeth, Port Natal, Lourenco Marques, and Beira on a monthly schedule. The same region is also served by three foreign lines, while one foreign line serves points on the Red Sea and East Africa.

The Mediterranean area which includes European Mediterranean, North African and Portuguese ports is served by four lines. The American Export Line provides regular monthly sailings to Casablanca, Tangiers, Ceuta, Melilla, Algiers, Malta, Piraeus, Salonica, Istanbul, Constanza, Alexandria, Jaffa, Beirut, and Haifa with American flag vessels. Foreign flag lines serving this region schedule monthly and semimonthly sailings to Italian, French, Portuguese, and North African ports.

Six American lines operate regular services out of Philadelphia to ports in the United Kingdom and Atlantic and Baltic Europe. The America-France Line schedule calls for semimonthly sailings to Havre and Dunkirk and monthly sailings to Havre, St. Nazaire, and Bordeaux. The American-Hampton Roads Line offers weekly sailings to London and a monthly service to Hull, Leith, and Dundee, while the American Scantic Line provides a weekly service to Copenhagen, Danzig, Helsingfors, Gdynia, Stockholm, and Gothenburg. This line in cooperation with the Mooremack Gulf Line provides a direct transshipment service at Philadelphia for cargo originating at or destined to Gulf ports. The Black Diamond Line offers a sailing every 10 days to Antwerp, Amsterdam, and Rotterdam while the Oriole Line operates on a semimonthly schedule to Manchester, Dublin, Glasgow, Belfast, and Liverpool. Hamburg and Bremen are served by the Yankee Line which offers weekly sailings to the former and fortnightly to the latter. Of the eight foreign lines serving this area, the three British lines serve principally the United Kingdom, while of the remainder, two serve Belgian and Netherland ports, one the German ports, and two the various Baltic ports. No regular service is maintained to the Union of Soviet Socialist Republics.

Communication with South and Central America and Mexico is maintained by 12 steamship lines, of which 2, the American Republics Line and Grace Line, are American owned and operated. The American Republics Line maintains monthly sailings via New York and Baltimore to Rio de Janeiro, Santos, Montevideo, Buenos Aires, and Rosario, while the Grace Line maintains monthly sailings to Cristobal, Balboa, Buenaventura, Callao, Mollendo, Arica, Antofagasta, Valparaiso, and San Antonio. Three American companies operating American and foreign flag vessels are engaged in this trade, one of which operates to the east coast of South America, while the other

two in addition to their regular passenger services limit themselves to the carriage of tropical fruits to Philadelphia, and taking only limited shipments from Philadelphia. The remaining lines all are of foreign registry and operate on semimonthly or monthly schedule to ports on the east coast.

One British line operating between Philadelphia and Windsor, Nova Scotia is engaged principally in carrying gypsum to Philadelphia, but it will also accept freight and passengers for Windsor.

Domestic trade.—The eight lines engaged in the intercoastal trade provide a total of 28 sailings per month to the principal ports of California, Oregon, and Washington. Direct service to Pacific coast outports is also available under certain specified conditions as provided for in their tariffs, otherwise cargo destined for outports may be transshipped to coastwise vessels for final delivery. One line offers a semiweekly sailing, three lines weekly sailings, one a semimonthly service, one a monthly service and one, three sailings per month.

The following table contains detailed information on steamship lines maintaining regular sailing schedules from Philadelphia. Many of these will call at Chester and other points below Philadelphia whenever sufficient cargo is offered.

Steamship services

Name of line	Nationality	Agent at Philadelphia	Points served by lines	Location of terminal in Philadelphia	Schedule	Class of service
HAWAII, FAR EAST, AND PHILIPPINES						
American & Manchurian Line.	British	Norton, Lilly & Co., Bourse Bldg.	To Shanghai, Hong Kong, Dairen, and Japanese ports.	Pier 98 South	Monthly	Freight.
American Pioneer Line	American	Chas. A. Devlin, Inc., Bourse Bldg.	To Shanghai, Honolulu, Hong Kong, and Manila, via New York.	do	do	Freight and passenger.
Bank Line	British	Ludwig Ruprecht, Bourse Bldg.	To Hong Kong, Shanghai, Manila, Iloilo, Cebu, via New York.	Various	Monthly	Freight.
Blue Funnel Line	do	Cunard White Star, Ltd., 1616 Walnut St.	To Shanghai, Hong Kong, Manila, via Atlantic ports.	Pier 98 South	do	Do.
Isthmian-Matson joint Hawaiian service.	American	Norton, Lilly & Co., Bourse Bldg.	To Hilo, Kahului, and Honolulu	Pier 40 South	Every 2 weeks	Do.
Java-New York Line	Netherlands	Cunard White Star, Ltd., 1616 Walnut St.	To Far East ports, via Atlantic ports	Pier 98 South	Semimonthly	Freight and limited passenger.
"K" Line	Japanese	Texas Transport & Terminal Co., Bourse Bldg.	To Yokohama, Kobe, and Osaka, via Baltimore, Norfolk, and Gulf ports.	Piers 55 and 98 South.	3 per month	Freight and refrigerator.
Kokusai Line	do	Ludwig Ruprecht, Bourse Bldg.	To Japanese ports via United States Gulf ports.	Various	Monthly	Freight, passenger, and refrigerator.
Maersk Line	Danish	B. H. Sobelman, Bourse Bldg.	To Shanghai, Hong Kong, Yokohama, Kobe, Manila, Iloilo, and Cebu, via Baltimore and New York.	Pier 98 South	Semimonthly	Freight.
Mitsui Line	Japanese	Rice, Unruh & Co., Bourse Bldg.	To Yokohama, Kobe, and Osaka, via Atlantic ports.	do	do	Freight, refrigerator, and bulk oils.
Nippon Yusen Kaisha	do	Lavino Shipping Co., 1528 Walnut St.	To Yokohama, Kobe, and Osaka, via Atlantic and Pacific ports.	do	Every 3 weeks	Freight.
O. S. K. Line	do	Rice, Unruh & Co., Bourse Bldg.	To Yokohama, Osaka, Kobe, and Chinese ports, via Atlantic coast ports.	do	Semimonthly	Freight, refrigerator, and bulk oils.
Panama Far East Line	American	Norton, Lilly & Co., Bourse Bldg.	To Shanghai, Manila, Cebu, and Iloilo	Pier 40 South	Monthly	Freight.
Silver-Prince Line (joint service).	British	Furness, Withy & Co., Public Ledger Bldg.	To Shanghai, Hong Kong, Belawan-Deli, Samarang, Soerabaya, Manila, Cebu, and Iloilo, via Atlantic ports.	Pier B, Port Richmond.	do	Do.

STRAITS SETTLEMENTS, INDIA, PERSIAN GULF, RED SEA, EAST AFRICA						
American & Indian Line	British	Norton, Lilly & Co., Bourse Bldg.	To Mombasa, Tanga, Dar es Salaam, Zanzibar, Aden, Colombo, Suez, Port Said, Alexandria, Port Sudan, Karachi, Bombay, Madras, Calcutta, Rangoon, Jaffa, Haifa, Beirut, Bangkok, Belawan Deli, Penang, Singapore, and Port Swettenham.	Pier 98 South	do	Do.
American Pioneer Line	American	Chas. A. Devlin, Inc., Bourse Bldg.	To Karachi, Bombay, Madras, Calcutta, and Rangoon, via New York and Hampton Roads.	do	9 per year	Freight and passenger.
AUSTRALIA AND NEW ZEALAND						
American & Australian Line	do.[1]	Norton, Lilly & Co., Bourse Bldg.	To Brisbane, Sydney, Melbourne, Adelaide, and Freemantle, Australia; Auckland, Wellington, Lyttieton, and Dunedin, New Zealand.	do	Monthly	Freight.
American Pioneer Line	do	Chas. A. Devlin Inc., Bourse Bldg.	To Brisbane, Sydney, Freemantle, Melbourne, and Adelaide, via New York.	do	do	Freight and passenger.
Port Line	British	Cunard White Star, Ltd., 1616 Walnut St.	To Brisbane, Sydney, Melbourne, Adelaide, Freemantle, Auckland, Wellington, Lyttleton, and Dunedin.	do	Monthly	Freight.
AFRICA—WEST, SOUTH, AND EAST						
American & African Line	do	Norton, Lilly & Co., Bourse Bldg.	To Capetown, Port Elizabeth, East London, Port Natal, Lourenco Marques, Beira, via Atlantic ports.	do	do	Do.
American & Indian Line	do	do	To Mombasa, Tanga, Dar es Salaam, Zanzibar, Aden, Colombo, Suez, Port Said, Alexandria, Port Sudan, Karachi, Bombay, Madras, Calcutta, Rangoon, Jaffa, Haifa, Beirut, Bangkok, Belawan Deli, Penang, Singapore, and Port Swettenham.	do	do	Do.
American South African Line	American	do	To Capetown, East London, Port Elizabeth, Port Natal, Lourenco Marques, and Beira.	do	do	Freight and passenger.
Hansa Line	German	Ludwig Ruprecht, Bourse Bldg.	To Lourenco Marques, Beira, Madagascar, Capetown, Port Elizabeth, East London, and Port Natal, via New York.	Socony-Vacuum wharf at Paulsboro, N. J. and Atlantic Refining Co. at Philadelphia.	Every 6 weeks	Freight.
Silver Line	British	Furness, Withy & Co. Public Ledger Bldg.	To Capetown, Port Elizabeth, East London, Durban, Lourenco Marques, and Beira (indirect).	Pier B, Port Richmond.	Monthly	Do.

[1] Operating foreign ships.

Steamship services—Continued

Name of line	Nationality	Agent at Philadelphia	Points served by lines	Location of terminal in Philadelphia	Schedule	Class of service
MEDITERRANEAN, NORTH AFRICA AND PORTUGAL						
American Export Line	American	American Export Line, Bourse Bldg.	To Casablanca, Tangiers, Ceuta, Melilla, Algiers, Malta, Piraeus, Salonica, Istanbul, Constanza, Alexandria, Jaffa, Beirut, and Haifa, via New York.	Pier 25 North	Monthly	Freight.
Fern Line	Norwegian	A. L. Burbank & Co., Public Ledger Bldg.	To Alexandria, Piraeus, Casablanca, Jaffa, Tel Aviv, Haifa, Lisbon, Beirut, and Istanbul, via New York.	Piers 34 and 55 South and Port Richmond piers.	do	Do.
Franco-Iberian Line	French	Megee Bros., Ltd., Drexel Bldg.	To Marseille, Casablanca, Leixoes, and Lisbon, via New York.	Pier D, Port Richmond.	Semimonthly	Do.
Italian Line	Italian	J. A. McCarthy, Jr., Lafayette Bldg.	To Trieste	Pier 78 South	Monthly	Do.
			To Venice, Fiume, Messina, Palermo, Genoa, Leghorn, and Naples.	do	2 per month	Do.
			To Lisbon	do	As cargo offers	Do.
UNITED KINGDOM, ATLANTIC AND BALTIC EUROPE						
America France Line	American	Chas. A. Devlin, Inc., Bourse Bldg.	To Havre and Dunkirk, via New York	Pier 98 South	Semimonthly	Do.
			To Havre, St. Nazaire, and Bordeaux	do	Monthly	Do.
American Hampton Roads Line.	do	do	To London	do	Weekly	Do.
			To Hull, Leith, and Dundee, via Baltimore, Hampton Roads, Boston, and Halifax.	do	Monthly	Do.
American Scantic Line	do	Moore & McCormack, Bourse Bldg.	To Copenhagen, Danzig, Helsingfors, Gdynia, Stockholm, and Gothenburg, via New York.	Pier 53 South	Weekly	Freight, passenger, and refrigerator.
Black Diamond Line	do	Dichman, Wright & Pugh, Inc., Bourse Bldg.	To Antwerp, Amsterdam, and Rotterdam, via Atlantic ports.	Pier A, Port Richmond	Every 10 days	Freight and limited passenger.
Bristol City Line	British	do	To Cardiff and Bristol, via Norfolk and New York.	Pier 98 South	Approximately every 3 week.	Freight.
Brocklebank's Cunard Line.	do	Cunard White Star, Ltd., 1616 Walnut St.	To London, Avonmouth, and Southampton, via Atlantic ports.	do	1 or 2 monthly	Do.
Hamburg-American Line, North German Lloyd—joint service.	German	Dichman, Wright & Pugh, Inc., Bourse Bldg.	To Bremen and Hamburg	Pier 24 North	Semimonthly	Joint service, freight.
Holland America Line	Netherlands	Furness, Withy & Co., Public Ledger Bldg.	To Amsterdam and Rotterdam, via Atlantic coast ports.	Pier B, Port Richmond.	do	Freight.
Isbrandtsen-Moller Line	Danish	B. H. Sobelman & Co., Bourse Bldg.	To Antwerp, Amsterdam, Rotterdam, and London, via New York.	Philadelphia Piers, Inc.	do	Do.
Manchester Liners	British	Furness, Withy & Co., Public Ledger Bldg.	To Liverpool and Manchester, via Halifax.	Pier B, Port Richmond.	do	Do.
Oriole Line	American	Chas. A. Devlin, Inc., Bourse Bldg.	To Manchester, Dublin, Glasgow, Belfast, and Liverpool, via Baltimore, Hampton Roads, and New York.	Pier 98 South	do	Do.

Scandinavian American Line.	Danish	S. L. Burgess & Co., Lafayette Bldg.	To Copenhagen and Oslo via Atlantic ports.	Pier 78 South	Monthly	Do.
Swedish American Line	Swedish	J. A. McCarthy, Lafayette Bldg.	To Helsingfors, Gothenburg, Malmo, Norrkoeping, and Stockholm, via Baltimore and New York.	do	2 per month	Do.
Yankee Line	American	Chas. A. Devlin, Inc., Bourse Bldg.	To Hamburg and Bremen	Pier 98 South	Approximately every 3 weeks.	Do.
SOUTH AND CENTRAL AMERICA, AND MEXICO						
American Republics Line.	do	Moore & McCormack, Inc., Bourse Bldg.	To Buenos Aires, Rio de Janeiro, Santos, Montevideo, and Rosario, via New York and Baltimore.	Pier 53 South	Monthly	Do.
Booth Line	British	Cunard White Star, Ltd., 1616 Walnut St.	To Para, Ceara, Natal, Cabedello, Pernambuco, Maceio, and Bahia.	Pier 98 South	Semimonthly	Do.
Essco-Brodin Line	Swedish	Norton, Lilly & Co., Bourse Bldg.	To Rio de Janeiro, Santos, Montevideo, Buenos Aires, and Rosario.	do	Monthly	Freight and passenger.
Grace Line	American	John C. Rogers & Co., Inc., Drexel Bldg.	To Cristobal, Balboa, Buenaventura, Callao, Mollendo, Arica, Antofagasta, Valparaiso, and San Antonio.		do	Freight.
Lamport & Holt Line	British	Cunard White Star, Ltd., 1616 Walnut St.	To Buenos Aires, Bahia Blanca, Para, Ceara, Pernambuco, Bahia, Maceio, Cabedello, Natal, Maranhao, Rio de Janeiro, Santos, and Montevideo.	do	do	Do.
Lloyd Brasileiro Line	Brazilian	Megee Bros., Ltd., Drexel Bldg.	To Rio de Janeiro, Santos, Rio Grande do Sul, Paranagua, and Sao Francisco, via Baltimore and New York.	do	do	Do.
North German Lloyd	German	Dichman, Wright & Pugh, Bourse Bldg.	From Montevideo and Buenos Aires	do	do	Freight—discharge only.
Norton Line	American [1]	Norton, Lilly & Co., Bourse Bldg.	To Buenos Aires, Rio Grande do Sul, and Puerto Alegre.	do	do	Freight.
Standard Fruit & Steamship Co.	do.[2]	Standard Fruit & Steamship Co., Pier 5 North.	To Puerto Alvaro Obregon, Mexico	Pier 5 North	2 per week	Freight, passenger, and refrigerator.
United Fruit Co	do.[2]	United Fruit Co., Pier 9 North.	To Puerto Barrios, Guatemala	Pier 9 North	do	Freight.
Yamashita Line	Japanese	Ludwig Ruprecht, Bourse Bldg.	To Buenos Aires, Pernambuco, Rio de Janeiro, Santos, Montevideo, via Baltimore or New York.	Various	Monthly	Freight and refrigerator.
CANADA						
Gypsum Packet Co., Ltd.	British	John C. Rogers & Co., Inc., Drexel Bldg.	To Windsor, Nova Scotia	Private plants	do	Industrial carrier but will carry freight and limited passengers.

[1] Operating Swedish ships.
[2] Operating American and foreign ships.

Steamship services—Continued

Name of line	Nationality	Agent at Philadelphia	Points served by lines	Location of terminal in Philadelphia	Schedule	Class of service
INTERCOASTAL						
American-Hawaiian Steamship Co.	British	American-Hawaiian Steamship Co., Public Ledger Bldg.	To Los Angeles, San Francisco, Oakland, Alameda, Seattle, Tacoma, and Portland, via New York.	Pier 48 South	Semiweekly	Freight.
California-Eastern Line	do	Dawnic Steamship Co., Bourse Bldg.	To Los Angeles, San Francisco, Oakland, Alameda, San Diego, Portland, Seattle, and Tacoma, Via South Atlantic ports.	Pier 24 North	Monthly	Do.
Calmar Steamship Corporation.	do	Moore & McCormack, Inc., Bourse Bldg.	To Los Angeles, San Francisco, Portland, Seattle, Tacoma; also Alameda, Oakland, and Richmond.	Pier 27 North	Every 2 weeks	Do.
Luckenbach Steamship Co.	do	Luckenbach Steamship Co., Public Ledger Bldg.	To Los Angeles, San Francisco, Alameda, and Oakland, Portland, Seattle, and Tacoma, via New York.	Pier 84 South	Weekly	Do.
McCormick Steamship Co.	do	McCormick Steamship Co., Drexel Bldg.	To Los Angeles, San Francisco, Oakland, Stockton, Portland, Seattle, and Tacoma, via Baltimore and Norfolk.	Pier 56 South	do	Freight and limited passenger.
Pacific Coast Direct Line (Weyerhaeuser Line).	do	W. J. Hanna, Public Ledger Bldg.	To Los Angeles, San Francisco, Portland, Seattle, and Tacoma, via Baltimore and Norfolk.	Pier D, Port Richmond.	3 per month	Freight.
Shepard Steamship Co.	do	A. L. Burbank & Co., Public Ledger Bldg.	To Los Angeles, San Francisco, Oakland, Alameda, Portland, Seattle, and Tacoma,	Pier 34 South	Semimonthly	Freight and passenger.
Quaker Line	do	Dawnic Steamship Co., Bourse Bldg.	To Los Angeles, San Francisco, Portland, Seattle, and Tacoma; also Cristobal, Canal Zone, San Diego, Oakland, Richmond, and Alameda, via Baltimore and South Atlantic ports.	Pier 24 North	Weekly	Freight.

STEAMSHIP RATES AND RATE PRACTICES

The establishment of rates, rules, regulations, and practices for or in connection with the transportation of cargo by carriers operating regular liner services in foreign trade usually is controlled by conferences or associations of the ocean carriers engaged in the particular trade. Carriers in the intercoastal trade and in some of the port to port coastwise trades are also associated in rate-fixing conferences. Export, import, and intercoastal ocean rates and coastwise port to port rates fixed under conference agreements may be obtained upon application to the officers of the respective conferences, or to the member lines. Section 15 of the Shipping Act of 1916 requires that agreements forming such conferences be submitted to the United States Maritime Commission for its approval before becoming lawfully effective. Copies of approved agreements setting forth the scope of the various conferences may be obtained from the United States Maritime Commission.

Most conference agreements are prefaced by statements similar to the following:

> The parties hereto associate themselves in this conference for the common good of shippers and carriers by providing just and economical cooperation between the steamship lines operating in the trade as well as stabilization of freight rates in the interest of shippers and carriers alike.

As a general rule, conferences operating from the port quote contract and noncontract rates. Contract rates are granted to all shippers who sign contracts agreeing to forward all their shipments in the trade covered by the conference on vessels of carriers who are conference members. Noncontract rates are assessed all shippers who do not avail themselves of the contract privilege and are slightly higher than the former. Time limits on such contracts differ with the individual conference. All rates are exclusive of marine insurance. It is customary in all tariffs to quote rates for various commodities on a weight or measurement basis and in such instances the freight is computed in whichever manner produces the greater revenue to the vessel. In all cases the ocean carrier reserves the right to refuse cargo which may damage other cargo or the vessel, or prove offensive to passengers.

All agreements name minimum bill of lading charges which also vary according to the conference, and which range between $5 and $12.50. When allowed, brokerage charge usually does not exceed 2½ percent of the total cargo booked.

Export Ocean Rate Conditions

Provisions of the North Atlantic/United Kingdom Freight Conference, the Far East Conference, the United States/River Plate and Brazil Conference, the United States Atlantic and Gulf/Straits

Settlements/Malay States and Siam Conference are representative of conditions governing export trade from Chester, Pa.

The North Atlantic/United Kingdom Freight Conference names contract and noncontract rates for shipment on vessels scheduled to sail within 1 month after the month in which quotation is made. All rates, unless otherwise stated, are in cents per 100 pounds, or per cubic foot, whichever provides the greater revenue to the steamer and apply on pieces or packages up to 4,480 pounds, and 30 feet in length. Rates are port to port, and unless otherwise specifically stated, do not cover charges established by custom and/or port tariffs for account of the owner of the goods. Packages of miscellaneous articles are rated on the basis of the highest rated article in package. Rates shown as open may be fixed by the individual carriers without consultation and without restriction as to rate or currency.

Provisions of the Far East Conference are representative of those governing trade from Chester to the Far East. Rates are quoted from North Atlantic ports to Yokohama, Kobe, Osaka, Shanghai, Hong Kong, and Manila (base ports), also to Dairen (Dalny), Cebu, and Iloilo (differential ports).

All rates are on a United States currency basis and apply from place of rest on wharf at Chester with ship's tackle delivery at destination, except at Shanghai and Hong Kong. Tolls, wharfage, lighterage, cost of landing and all other expenses beyond ship's tackle are for the account of the owner, shipper, or consignee of the cargo except at Shanghai and Hong Kong.

At Shanghai, in accordance with the custom of the port, the receiving, sorting, and delivery charges are for the account of the vessel.

At Hong Kong delivery is in accordance with the custom of the port, which provides for the landing of all general cargo at an approved warehouse to be nominated by the shipping company with 7 days' free storage. Any lighterage charges incurred in landing cargo at warehouse are for account of carrier. Shipside delivery may be granted at the discretion of the shipping companies, or their agents, but it is not permissible to absorb consignee's lighter hire or allow special lighterage facilities under any circumstances.

The tariff provides contract and noncontract rates which apply on packages or pieces not exceeding 8,000 pounds or 45 lineal feet.

All direct and transshipment charges must be prepaid, except on shipments of case oil, cotton, phosphate rock, and Government cargoes.

All contracts must be at rates specified in tariff at time of booking and may not contain a fall clause.

Unless otherwise specified no freight engagement or contract may be made at rates named in tariff for a period in excess of 90 days.

Rates named in tariff apply on all cargo in transit originating outside United States Atlantic and Gulf ports.

Provisions governing the United States Atlantic and Gulf/India and Ceylon Conference, the United States/River Plate and Brazil Conference and the Atlantic and Gulf/Straits Settlements, Malay States, and Siam Conference are similar to those observed by the Far East Conference. However rates listed by the two former apply on packages or pieces not exceeding 4,480 pounds or 40 lineal feet, while rates quoted by the latter apply on packages or pieces not exceeding 4,000 pounds or 40 lineal feet.

Import Ocean Rate Conditions

The rules and practices of the North Atlantic Westbound Freight Association, the Japan-Atlantic Coast Freight Conference, the New York Freight Bureau (Shanghai), and the Brazil-United States Freight Conference are representative of conditions governing the transportation of import cargo at Chester, Pa.

The North Atlantic Westbound Freight Association quotes contract and noncontract rates in English currency from United Kingdom ports on pieces or packages not weighing over 4,480 pounds, rates being on a weight-measurement basis, whichever gives greater revenue to the vessel.

Rates apply on cargo for local delivery and also on traffic destined to all States in the United States east of a line drawn along the western boundary of North and South Dakota, Nebraska, Colorado, and Arizona.

The tariff also quotes special ocean proportionate rates both contract and noncontract which are lower than those referred to above. Such rates apply only on specified traffic destined to interior points in North Dakota, South Dakota, Minnesota, Wisconsin, Michigan, Nebraska, Iowa, Illinois, Indiana, Ohio, Colorado, Kansas, Missouri, Kentucky, and Tennessee, and to points in the States of New York, Pennsylvania, Maryland, Virginia, and West Virginia, situated south of the international boundary and of a line drawn from Rochester, N. Y., to Syracuse, N. Y., both inclusive, and west of a line drawn from Syracuse through and including Danville, Va.

Railway companies charge for labor, and material for staking, blocking, or otherwise serving goods in cars, where incurred, are for account of consignees.

Traffic from countries other than the United Kingdom carried at through rates from original port of shipment is exempt from provisions of tariff. Refrigerator rates are by special agreement only.

The Brazil/United States Freight Conference governing trade from Brazilian ports lists rates in United States currency per 1,000 kilos or 40 cubic feet, applicable on all packages or pieces not weighing over two metric tons and not exceeding 40 feet on any dimension. Where packages contain more than one commodity freight is assessed on the

highest rated commodity in the package. In most instances freight and other charges are collected in United States currency on presentation of documents by consignee or his agent to the owner or representative of the steamer. Unless otherwise provided, forward booking or freight contract is not made for shipments further in advance than the current and next succeeding 2 calendar months.

Member lines agree not to solicit cargo for delivery to other than a definitely scheduled port. When a vessel does not make a regular scheduled discharge port because of operating reasons, carriers may transship cargo to the particular port at their own expense. On cargo destined to United States Gulf ports, cargo may be transshipped from one Gulf port to another at carrier's expense.

The Japan-Atlantic Coast Freight Conference names minimum rates via Panama Canal from ports in Japan (including Formosa) and Dairen based upon the 2,000-pound ton or 40 cubic feet whichever provides the greater revenue to the steamer. Rates are quoted in United States currency and contract and noncontract rates are available to shippers.

All cargo is weighed and/or measured only at official landing places (hatobas) by appointed sworn measurers except at Nagoya and Yokkaichi where weighing is permitted in godowns of the steamship companies receiving the cargo.

The New York Freight Bureau (Shanghai) names minimum contract and noncontract rates based on the 2,000-pound ton or 40 cubic feet.

Rates apply from Shanghai, Yangtze River, and North China ports (excluding Tientsin) via the Suez or Panama Canals or Cape of Good Hope by direct steamers or with transshipment on the Pacific coast to intercoastal carriers. Conference regulations are similar to those observed by the Japan-Atlantic Coast Freight Conference.

Atlantic-Pacific Intercoastal Trade

Class and commodity rates on general cargo named by carriers members of the Intercoastal Steamship Freight Association apply in the direction named between all United States ports served on the Atlantic coast and all United States ports served on the Pacific coast. With certain exceptions as provided in tariffs, the rates apply from or to designated place of rest on individual carrier's pier or, optionally, direct from or to open top cars or floating equipment alongside. They do not include marine insurance; and terminal charges for wharfage, tolls, loading or unloading of rail cars, floating equipment or trucks, storage, transfer, switching, rail car demurrage and other accessorial services when assessed are also in addition. Application of eastbound lumber rates is given on page 177.

Intercoastal class rates, in cents per 100 pounds

Classes	1	2	3	4	5	A	B	C	D	E
Rates	440	380	314	270	226	226	182	143	127	99

Above class rates apply to or from Atlantic ports and are subject to ratings and minimum weights provided in the western classification.

Effective as of October 18, 1938; tariff authority: Alternate Agent Wells S. B.–I No. 6, west-bound S. B.–I No. 7, east-bound.

Selected west-bound intercoastal commodity rates from Atlantic ports

[Conference lines including Calmar Steamship Corp.]

Commodity	Cents per 100 pounds		
	Carload minimum weight in pounds	Carload	Less carload
Agricultural implements	24,000	72	165
Bags, burlap, gunny, or jute	30,000	94	160
Boots and shoes	20,000	220	220
Paints and paint compounds	24,000	50	110
Canned goods	36,000	58	100
Mill work, e. g., doors	30,000	165	230
Machinery, e. g., generators	24,000	116	126
Newsprint paper	36,000	62.5	142.5
Roofing paper [1]	40,000	45	140

[1] Owner's risk of damage.

Effective as of October 18, 1938; tariff authority: Alternate Agent Wells, S. B.–I, No. 6. Calmar Steamship Corporation, S. B.–I, No. 5.

Selected east-bound intercoastal commodity rates to Atlantic ports

[Conference lines and Calmar Steamship Corp.]

Commodity	Cents per 100 pounds		
	Carload minimum weight in pounds	Carload	Less carload
Canned goods	36,000	58	100
Dried beans and peas	36,000	60	150
Dried fruits and vegetables:			
In boxes	30,000	69	110
In bags	30,000	92	110
Rolled oats, oatmeal, etc	24,000	58	165
Flour	24,000	35	100
Wheat in bags, minimum 50,000 pounds	----------	41	----------
Wheat in bulk or bags, minimum 500 tons of 2,000 pounds	----------	32.5	----------

Effective as of October 18, 1938; tariff authority: Alternate Agent Wells, S. B.–I, No. 7; Calmar Steamship Corporation, S. B.–I. No. 6.

Intercoastal lumber to Atlantic ports.—Alternate Agent Wells, in his S. B.–I, No. 7, publishes for the intercoastal lumber carriers, members of the Intercoastal Steamship Freight Association conference, transportation rates on east-bound intercoastal lumber on a "ship's hook" acceptance and delivery basis. The rates cover only the movement

of the lumber from within reach of ship's tackle at loading port to end of ship's tackle at port of discharge, and do not include any handling or services of any character either by manual or machine power preceding attachment of ship's hook or after release from hook. When handling (moving of lumber to ship's tackle from place of rest on terminal at loading port) or car unloading is performed, all charges for such services are for the account of the cargo and are in addition to the transportation rate.

Transportation rates to Atlantic ports.—East-bound intercoastal lumber and lumber products, except shingles, wooden pickets, spars, poles, and piling:

In minimum lots of not less than 12,000 feet, net board measure: $14 per 1,000 feet, net board measure.

When quantity covered by one bill of lading totals not less than 12,000 feet, net board measure: $14 per 1,000 feet, net board measure.[1]

When quantity covered by one bill of lading totals less than 12,000 feet, net board measure: $14.50 per 1,000 feet, net board measure.[1]

In minimum lots of not less than 12,000 feet, net board measure, or in minimum lots averaging not less than 7,000 feet, net board measure, when two or more lots are covered by one bill of lading: $14 per 1,000 feet, net board measure.[2]

Shingles, green or dry, in bundles: 70 cents per 100 pounds.

Spars, poles, and piling are taken entirely at ship's option, and subject to prior booking. Transportation rates are as follows:

Pieces 60 feet and shorter, apply lumber rate.

Pieces 61 feet to 100 feet, add 10 percent to lumber rate.

Pieces 101 feet and longer, add 25 percent to lumber rate.

Extra length scale applicable on spars, poles, and piling, and which is in addition to the transportation rate, is as follows:

Pieces up to and including 42 feet, no additional charge.

Pieces over 42 feet, but not over 50 feet, add $1 per 1,000 feet, net board measure.

Pieces over 50 feet, but not over 60 feet, add $2 per 1,000 feet, net board measure.

Pieces over 60 feet, but not over 70 feet, add $3 per 1,000 feet, net board measure.

Pieces over 70 feet, but not over 80 feet, add $4 per 1,000 feet, net board measure.

Pieces over 80 feet, but not over 90 feet, add $6 per 1,000 feet, net board measure.

Pieces over 90 feet, but not over 100 feet, add $9 per 1,000 feet, net board measure.

Tariff authority: Alternate Agent Wells, S. B.–I, No. 7; effective April 15, 1937.

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[1] Applicable only via Weyerhaeuser Steamship Co., Pacific-Atlantic Steamship Co. (Quaker Line), States Steamship Co. (California-Eastern Line), Luckenbach Steamship Co., McCormick Steamship Co., Isthmian Steamship Co., American-Hawaiian Steamship Co., and Panama Pacific Line.

[2] Applicable only via Arrow Line (Sudden & Christensen).

TERRITORY TRIBUTARY

The port of Chester, while subordinate to the port of Philadelphia because of the greater facilities offered by the latter, is in nearly all cases on a parity with it as to freight rates to and from interior territory.

Because of this rate parity Chester is in position to serve eastern Pennsylvania, southern New Jersey, Delaware, and the Eastern Shore of Maryland on practically the same basis as Philadelphia. Class and commodity rates are similar to those enjoyed by Philadelphia and are less than those from this restricted local territory to New York and Baltimore. The territory outside the local area extending westward to Buffalo from the Syracuse-Binghamton line, and from Lake Ontario south to a short distance below the Pennsylvania-New York State line is competitive and import and export rates are on a parity with those to Philadelphia, New York, and Baltimore. In a small area which includes a portion of New York State west of Buffalo and the northwest corner of Pennsylvania, export and import rail rates to Chester, Philadelphia, and Baltimore are on a parity, while those to New York are higher. From points in Pennsylvania west of the Susquehanna River and in the States of West Virginia, Ohio, Indiana, Illinois, Michigan, and Wisconsin, Baltimore enjoys export and import rail-rate differentials under Chester and the Philadelphia area, which in turn has a differential in its favor under New York.

The local territory of Chester is limited to a small sector of eastern Pennsylvania. The competition of both Philadelphia and Wilmington tend to curtail the local area that can be served under advantageous freight rates.

No statistics are available as to the distribution of imports and the origin of exports. Information obtainable shows that the greater part of the import traffic, composed principally of raw materials, is consumed by the industrial establishments located in the port area or immediately adjacent thereto.

Chester's tributary territory as to exports is much more extensive due principally to the export of automobiles which originate in Detroit, Mich., and are assembled locally prior to shipment. Of the other commodities entering into the export trade some are produced locally and the balance originate principally in the area generally known as Philadelphia territory.

The following statistics compiled by the Division of Research, United States Maritime Commission, show that the import trade

consisted of only a few commodities totalling in all 49,693 cargo tons of which pulpwood and wood pulp from Atlantic Canada and iron ore from Cuba and Greece accounted for 39.9 percent and 35.6 percent respectively. The West Indian countries of Cuba, Haiti, and Jamaica were the source of the entire import movement of dyeing and tanning materials, while iron, steel, and manufactures were received from Canada, and nonmetallic minerals from Italy. An unusual movement of petroleum from Belgium was also recorded.

Exports were distributed over a much wider area than that contributing to the import traffic. Shipments to the east coast of South America outranked those to any other area, while those to Japan ranked second. Important shipments were also made to the United Kingdom and continental Europe.

Vehicles, consisting of automobiles, trucks, and tractors comprised 93.8 percent of the export movement of 61,070 cargo tons. Petroleum and petroleum products and iron, steel and manufactures and chemicals were also important exports.

Water-borne foreign commerce of Chester, Pa., calendar year 1936 (in cargo tons of 2,240 pounds)

FOREIGN

Commodity	Grand total	East coast South America			West coast South America—Chile	West Indies				Mexico	Central America—Canal Zone	United Kingdom		
		Brazil	Argentina	Total		Cuba	Jamaica	Haiti	Total			England	Ireland	Total
IMPORTS														
Pulpwood and wood pulp	19,807													
Petroleum and products	894													
Nonmetallic minerals	2,000													
Iron ore	17,690					13,461			13,461					
Iron, steel, and manufactures	2,500													
Dyeing and tanning materials	6,801					2,738	1,674	2,389	6,801					
Miscellaneous	1					1			1					
Total	49,693					16,200	1,674	2,389	20,263					
EXPORTS														
Fruits and nuts	15													
Tobacco and manufactures	58													
Cotton, raw	25													
Rubber and manufactures	24	11		11	13									
Paper stock and manufactures	173		173	173										
Petroleum and products	1,527				1									
Nonmetallic minerals and manufactures	1													
Iron, steel, and manufactures	925		47	47						275	603			
Machinery	1				1									
Vehicles	57,277	9,579	10,729	20,308	1,624							4,340	1,288	5,628
Pigments, chemicals, and manufactures	719	22	12	34	6					514				
Miscellaneous	325	34	9	43	6							41	19	60
Total	61,070	9,646	10,970	20,616	1,651					789	603	4,381	1,307	5,688

Water-borne foreign commerce of Chester, Pa., calendar year (in cargo tons of 2,240 pounds)—Continued

FOREIGN—Continued

Commodity	North Atlantic and Baltic Europe					Havre-Hamburg range				West Mediterranean			East Mediterranean and Black Sea—Greece	East Asia—Japan	Atlantic Canada and Newfoundland
	Finland	Sweden	Denmark	Poland	Total	Germany	Netherlands	Belgium	Total	Spain	Italy	Total			
IMPORTS															
Pulpwood and wood pulp															19,807
Petroleum and products								894	894						
Nonmetallic minerals											2,000	2,000			
Iron ore													4,229		
Iron, steel, and manufactures															2,500
Total								894	894		2,000	2,000	4,229		22,307
EXPORTS															
Fruits and nuts		15			15										
Tobacco and manufactures				58	58										
Cotton, raw	25				25										
Petroleum and products		108			108		10	10	20		1,388	1,388		10	
Nonmetallic minerals and manufactures														1	
Vehicles			6,655		6,655	208	3,090	4,300	7,598	729	420	1,149		14,315	
Pigments, chemicals, and manufactures		15	16		31		7		7					127	
Miscellaneous		5	79	9	93		45	72	117	5		5		1	
Total	25	143	6,750	67	6,985	208	3,152	4,382	7,742	734	1,808	2,542		14,454	

NOTE.—Intercoastal commerce included in Philadelphia.

THE PORT OF TRENTON, N. J.

PORT CUSTOMS AND REGULATIONS

FEDERAL SERVICES AND REGULATIONS

The information relative to Federal services and regulations included in the report on Chester, Pa., page 135 is, with the exception of the data on customs service, also applicable at the port of Trenton.

Customs Service

The port of Trenton is not a customs port of entry and all vessels unless exempted by the Secretary of Commerce must make entry at the customhouse at Second and Chestnut Streets, Philadelphia, Pa., before proceeding to Trenton, or other points on the Delaware River above Philadelphia. The entire South Jersey port district, see page —, is under the jurisdiction of the Philadelphia collector of customs. Customs guards and inspectors are detailed from Philadelphia and usually board the vessel at that port. Vessels are liable for expenses incurred by customs officials detailed from Philadelphia.

The customhouse at Philadelphia is open weekdays from 9 a. m. to 4:30 p. m. except on Saturday when it is open from 9 a. m. to 1 p. m. From the last Sunday in April to the last Sunday in September the customhouse opens and closes 1 hour earlier. Working hours for inspectors are generally between 8 a. m. and 5 p. m. with 1 hour allowed for lunch. Clearance of vessels may be effected by agents or masters during the above hours or at other than regular hours by special arrangement with customs officials.

LOCAL RULES AND REGULATIONS

The rules and regulations of the Navigation Commission for the Delaware River as quoted in the report on Chester, page 137, are applicable on the Delaware River from Trenton to Marcus Hook.

TERMINAL RULES AND REGULATIONS

The Trenton marine terminal publishes in its various tariffs the following rules and regulations governing use of terminal and handling of cargo.

The terminal will receive and deliver goods daily except Saturday afternoons, Sundays and full legal holidays from 8 a. m. to 12 noon and from 1 p. m. to 5 p. m. Trucks will not be permitted to enter the terminal for loading or unloading after 4:30 p. m. on weekdays and 11:30 a. m. on Saturdays, except by special arrangement. When

a holiday falls on Sunday the following Monday will be considered a holiday.

Except by special arrangement with terminal, services will not be performed on weekdays between the hours of 12 noon and 1 p. m. and 5 p. m. to 8 a. m.; on Saturdays from 12 noon to midnight, or on Sundays, or full legal holidays.

When by special arrangement services are performed at other than regular hours, overtime will be charged at prevailing rates plus 15 percent or on basis of cost plus 15 percent at option of terminal.

The terminal reserves the right to perform handling of cargo with its own facilities. When handling is performed by owners of cargo, carriers or their agents, the terminal in granting permission, places all responsibility and liability for damage or accidents on such persons performing the work. Handling and piling of goods by outside labor must be performed to the terminal's satisfaction. It may, if it sees fit, rehandle goods or remove goods from place of rest into storage at risk and expense of cargo.

The terminal does not include insurance of any description in its tariff rates.

The terminal will accept packages based on "said to contain" weights declared by shipper, and will not be responsible for actual net weight or natural shrinkage. The terminal will not be responsible for degradation, variation from marked analysis, hardening or of absorption of moisture in materials, rotting or discoloration of packages, tags or labels, damage caused by rodents or vermin or any other cause beyond its control.

Unless the terminal is otherwise notified, packages received in bad condition will be accepted by the terminal, with the exception taken, and at terminal's option, repaired for account of shipper.

The terminal will not be responsible for bales broken by ship's stevedore and will assume recooperage only on bales damaged while being handled by terminal employees.

The terminal will not be responsible for splitting, chafing, or discoloration of lumber or breaking of bundles while in place of rest or storage, and will not take exception to, or be responsible for, shipments discharged from vessels in bad condition.

The terminal will receive lumber from vessels in lots "said to contain" as per carriers' bills of lading and will so deliver to consignees without assuming responsibility for quantity, condition, grade, or specie. Tallying, when requested, will be performed only for the convenience and information of owners of lumber.

PORT ADMINISTRATION

Jurisdiction over the port of Trenton is exercised by the State through its Board of Commerce and Navigation and the South Jersey

Port Commission, and by the city of Trenton through its department of public works and service.

The Board of Commerce and Navigation consists of eight members appointed by the Governor for 4-year terms with the advice and consent of the senate, two members being appointed annually. The board elects one of its own members president for a 1-year term and also selects for a 4-year term a director of commerce and navigation who devotes his entire time to the duties of his office. The board members receive no compensation for their services other than reimbursement of necessary expenses.

This board exercises full control and direction of all State projects and work relating in any way whatsoever to commerce and navigation not conferred on other boards, commissions, and agencies. It is the duty of the director to exercise general supervision over all projects relating to the commerce and navigation within and about the State and all work in any way relating thereto; to enforce all laws, rules, and regulations; and to obtain, collect and preserve information relating to the State's commerce and navigation and to determine ways and means by which it may be advanced.

The board must investigate and report annually to the legislature the condition of the water front and harbor facilities and any other matter incident to the movement of commerce, and shall recommend to the legislature and to the various municipalities interested therein such measures as may be necessary or advisable for the preservation of proper navigation or its improvement.

All plans for the development of the water front upon any navigable water or stream of the State which is contemplated by any person or municipality, either in the nature of individual improvement or development or as part of a general plan which involves the construction or alteration of a dock or wharf, pier, bulkhead, bridge, pipe line, cable, or any other water-front development shall be first submitted to the board. No such development or improvement shall be commenced or executed without the approval of the board.

Where the water front is under the control of a local board, commission, or other governing body created by legislative act, having power to improve or develop the water front or exercising such authority so that a permit or license must be granted by it before any improvement or development may be commenced, plans proposed by it or submitted to it shall be filed with the board. The board may within 10 days after the receipt by it of such plans file notice of objections to the carrying out of the improvement or to the granting of a permit or license by such local governing body. The filing of such notice shall act as a stay until a public hearing is held by the local governing body sitting jointly with the board, and the two bodies

shall approve or disapprove the plans or grant or refuse to grant the permit or license as seems necessary or desirable.

The South Jersey Port Commission consisting of three members appointed for 5-year terms by the Governor with the advice and consent of the senate, has the power and authority, subject to approval of the Board of Commerce and Navigation, over the survey, development, control, and operation of port facilities in the South Jersey port district consisting of the counties of Mercer, Burlington, Camden, Gloucester, Salem, Cumberland, and Cape May and the coordination of the same with existing or future agencies of transportation with a view to the increase and efficiency of all such facilities and the furtherance of commerce and industries in the district.

The Commission may petition the Interstate Commerce Commission or like body, public service commission, public utility commission or any other Federal, municipal, State, or local authority, administrative, legislative, or judicial having jurisdiction in the premises for the adoption and execution of any physical improvement, change in method, rate of transportation, system of handling freight, warehousing, docking, lightering or transfer of freight, which in its opinion may be designed to improve or better the handling of commerce in and through the district or improve terminal and transportation facilities therein. It may intervene in any proceeding affecting the commerce of the district but nothing herein contained shall impair the powers of any municipality to develop or improve port and terminal facilities.

The Commission also has the power to make and cause to be served upon any municipal or other corporation or individual within the district any reasonable order which it may determine to be necessary for the proper development, maintenance and use of the district relating to the construction, equipment, repair, maintenance, use, and rental of any dock, wharf, slip, terminal, or warehouse owned or leased by such corporation or individual within the district. With such an order a notice is also served specifying a date for a hearing of any objections to the order after which the order may be sustained in its original or modified form or canceled. Such orders are final and are subject to review only by a court of competent jurisdiction.

The city of Trenton exercises direct control over the port through its department of public works and service under the authority of article 28, Laws of New Jersey, 1917, which provides that the governing body of every municipality shall have the power to make, enforce, amend, or repeal ordinances providing for the improvement, extension, alteration, maintenance, use, regulation, and supervision of wharves, piers, bulkheads, docks, slips, basins, harbors, and harbor structures; to make soundings and surveys and to prepare plans therefrom, and keep records thereof, and to regulate, fix and establish bulkhead and pierhead lines, and the distance between piers,

subject to the regulations of the United States and the State of New Jersey; to adopt and promulgate rules and regulations for the construction, extension, alteration, improvement, repair, and use of all wharves, piers, bulkheads, docks, slips, basins, harbors, and harbor structures within the limits of the municipality, and to provide for the issuance of licenses and permits in relation thereto upon the payment of certain fees.

The governing body of the municipality, after a hearing of the parties in interest, also has the power to regulate the service and to fix maximum rates for public wharfage, cranage, and dockage whether the service is performed by the owners of said wharves, piers, or docks or by the municipality.

The municipality also has the power and authority, after an appropriation has been made of the money required therefor, to acquire by purchase or condemnation, in the name of and for its benefit such unimproved marshland or other land within or adjacent to it and to fill in and improve such lands and construct thereon wharves, piers, docks, slips, and basins and other similar structures and to lease or rent the same; and to acquire in a similar manner any land, wharf, pier, bulkhead, dock slip, basin, or other similar structure, and also all lands, property rights, easements, and privileges appurtenant thereto within the limits of the municipality.

The municipality has full authority to construct wharves, piers, bulkheads, and structures on all lands acquired by it and in the water adjacent thereto, and slips, basins, docks, wagon roads, railroads, bridges, and other facilities for transportation and shipping, and to fill in said lands and make and construct channels in any navigable waters upon which the said lands front. It may also acquire additional lands for the purpose of connecting said docks with the highways and railroads in the municipality, and other public docks of the municipality; and may upon the additional lands so acquired construct waterways, railroads, highways, and bridges, and all other appliances necessary or convenient for the purpose of affording proper and convenient access to said docks from the railroads and highways and other docks in the municipality, and upon land adjacent to the waterways, railroads, railways, and highways, to erect wharves, docks and other structures, proper or necessary for the furnishing of docking and shipping facilities.

The governing body of the municipality may lease for a period not to exceed 10 years under such covenants and conditions as it may prescribe, storage facilities, wharves, piers, bulkheads, docks, slips, and basins belonging to it.

The income from all wharfage and storage rates, cranage, dockage, and other charges, and from all leases of land and facilities, shall be paid into the municipal treasury and shall be applied first, to the care,

maintenance, repair, and protection of said docks, wharves, piers, bulkheads, and approaches and other expenses incident to the control, supervision, and operation thereof; second, to the payment of interest on outstanding bonds or other evidences of indebtedness; third, to the payment of the principal of said bonds or other evidences of indebtedness; and fourth, to the general expenses of the municipality after the payment in full of bonds, etc.; provided, however, that any deficiency after the application of revenue, shall be appropriated, levied and raised by taxation from year to year.

The governing body of the municipality shall appropriate and raise annually the funds necessary to pay all costs and expenses incident to the supervision and control of wharves, docks and ferries.

The actual operation and administration of the port of Trenton is under the direct supervision of a port manager who is charged with the maintenance and operation of the municipally owned facilities and the enforcement of such laws, rules, and regulations or ordinances that have been promulgated by the State, county, or municipality for the government of the port. The port manager is appointed by the city manager, but is directly responsible to the director of the department of public works and service. The director is responsible directly to the city manager.

There is also a citizens advisory board of 12 members who are appointed by the city council to act as an investigating and advisory committee for the city on matters pertaining to the port and its operation.

PORT LABOR AND METHODS EMPLOYED IN HANDLING CARGO

PORT LABOR

There are approximately 100 union longshoremen and 200 permit longshoremen available at Trenton for the handling of cargo between ship and shore. Regular union members are granted preference of available work while those holding union permits are called only when the supply of regular union longshoremen is insufficient.

Wages and working conditions are based on an agreement between the International Longshoremen's Association and its affiliated locals and the deep-water steamship lines and contracting stevedores of the port of Philadelphia and vicinity, a digest of which is included in the report on Chester, Pa., page 147.

There is an ample supply of terminal and other types of labor available at all times.

METHODS EMPLOYED IN HANDLING CARGO

The Trenton Marine Terminal and the municipal wharf, which is under the control of the terminal, are open to all water carriers. Deep draft vessels can be accommodated at the terminal where there is 1,200 feet of berthing space and modern cargo-handling facilities. The municipal wharf is restricted to light draft river and inland waterway vessels. There is no cargo-handling equipment at this facility.

Vessels berthing at the marine terminal may handle cargo by several methods. Two steam gantry cranes and a caterpillar crane are available and the cargo masts at berths 1 and 2 may be used in conjunction with ship's tackle to facilitate the transfer of cargo. Ship's tackle may also be used advantageously at this terminal. A 40-foot-wide apron, equipped with two railway tracks for its entire length, and two cross-overs greatly facilitate the handling of cargo between rail and ship, and the handling of lumber and other bulky commodities. A depressed railway track and teamway in the rear of the transit shed at berth 2 permit direct trucking of cargo into box cars or other vehicles either from ship's tackle or from pile in transit shed. Trucks and teams are also permitted to enter the transit shed and load direct from pile. Pier shed No. 2 at berth 3 is used primarily as a warehouse, but it may also be used for transit cargo when additional space is required.

Vessels engaged in the foreign and intercoastal trade are loaded and unloaded by regular stevedore companies, while the river and

inland waterway boats, barges, and lighters are generally loaded and unloaded by terminal labor, or the crews of the vessels.

General cargo is handled by stevedores between ship's hold and place of rest in transit shed, while lumber and fertilizers are generally released at end of ship's tackle to terminal employees who transfer it to storage areas in open or under cover. Lumber carriers are used to back pile lumber at the terminal and to transport it to the large open storage area across the road from the terminal. Two sheds are available in this area for storing kiln-dried lumber. Fertilizer in bulk is handled from shipside by carts and piled by mechanical conveyors. Clays are usually handled direct from ship to car by the stevedores; otherwise they are handled in the same manner as fertilizer.

The Pennsylvania Railroad provides the only rail connection with terminal trackage, and all freight destined to or from the terminal via other railroads must be interchanged with the Pennsylvania Railroad, subject to the regular switching charges.

PORT AND TERMINAL SERVICES AND CHARGES

PILOTAGE

The rules and rates governing pilotage into and out of Trenton are based on the rules and rates for pilotage between Philadelphia and the sea as quoted in the report on Chester, page 153, plus a flat rate of $35 each way.

TOWAGE

Tugs are not ordinarily required for the docking and undocking of vessels at Trenton. When the services of tugs are required they are usually obtained from Philadelphia at rates which are subject to private agreement.

For assisting steamers from dock or anchorage at Philadelphia, Delaware River front, to marine terminal, Trenton or vice versa, the standard charge is $187 for each tug required. For assisting between Philadelphia and Burlington or Roebling the standard charge is $125 per tug.

DOCKAGE

The following dockage charges are applicable to vessels docking at the Trenton Marine Terminal:

1. Sailing vessels and other craft, per day of 24 hours or fraction thereof:
   - 50 feet or under in length $1.00
   - 51 feet to 75 feet in length 1.25
   - 76 feet to 100 feet in length 2.00
   - 101 feet to 150 feet in length 2.50
   - 151 feet to 200 feet in length 3.50
2. Vessels (other than self-propelled but including sailing vessels) exceeding 200 feet in length are assessed $3.50 plus 2 cents for each additional over-all running foot per day of 24 hours or fraction thereof, including Sundays and holidays.
3. Self-propelled (other than sailing) vessels exceeding 200 feet in length, per calendar day:
   - First 3,500 net registered tons, per net registered ton $0.01
   - Each additional net registered ton ..... .0025
   - Minimum charge per day:
     - Vessels of foreign registry 25.00
     - Coastwise vessels of 1,000 net registered tons or over 25.00

NOTE.—Vessels arriving after 5 p. m. and remaining overnight will be charged dockage commencing following calendar day. Vessels sailing before 8 a. m. will be charged dockage to end of previous calendar day.

4. Lighters, scows, barges and floats tied up for the purpose of receiving and/or delivering cargo direct from or to vessels subject to item 3 above, per day or fraction thereof $1.00

5. Pleasure craft:

	Per night
50 feet or under in length	$1.00
51 feet to 75 feet in length	1.25
76 feet to 100 feet in length	2.50
101 feet to 150 feet in length	5.00
201 feet and over	15.00

6. Excursion boats:

Per call, remaining not more than 8 hours and sailing before midnight	5.00
Per overnight, after 5 p. m. until 7 a. m	10.00
Maximum charge, per 24-hour day	15.00

7. The terminal may grant free dockage to vessels owned or operated by the United States Government, State government, municipalities or their agents, or by contractors engaged by them.

8. Vessels carrying lumber and woodpulp are subject to the following dockage charges:

(*a*) Self-propelled vessels 200 feet or over in length per net registered ton per day of 24 hours or fraction thereof:	
First 3,500 net registered tons	$0.01
Each additional net registered ton	.0025
Minimum charge per day	25.00
(*b*) Deck scows, barges, and sailing vessels, also power vessels under 200 feet in length—per day of 24 hours or fraction thereof, per over-all running foot	.02

WHARFAGE

The following wharfage charges are assessed by the Trenton Marine Terminal for the privilege of moving cargo into or through terminal property, use of rail sidings, teamways, and platforms, and the services of watchmen and clerical service involved in landing and passing of cargo discharged from or to be loaded on vessels. Wharfage, under the name of service charge, is also assessed on non-water-borne traffic handled at the terminal.

Top wharfage is assessed against lumber, lath, and shingles at the following rates:

Lumber, per 1,000 net feet	$0.50
Shingles, per bundle	.01
Lath, per bundle of 100 pieces	.01
Lath, per bundle of 50 pieces	.005

No charge will be assessed against shipments of lumber, lath, or shingles consigned (1) at time of arrival of vessel, and released by shipper within the free time period (*a*) to definite dealer consignees operating regularly established retail lumber yards to which such shipments will be ultimately transferred; (*b*) to industrial establishments and such other users, who ordinarily secure their supplies direct from wholesale shippers and/or producers, to whom such shipments will be ultimately transferred, and will be for such consignees, account. (2) Distress shipments, viz, shipments originally consigned to a definite consignee (other than wholesaler without a regularly estab-

lished yard) at a definite destination which have become involved in dispute and delivery delayed, order canceled, or refused; or against shipments released within free time or demurrage periods.

Top wharfage is assessed at the Trenton Marine Terminal on sand, gravel, crushed stone, trap rock, scrap metals, and pig iron at the rate of 5 cents per ton of 2,000 pounds, and on all other cargo, except lumber and coal and coke, at the rate of 10 cents per ton of 2,000 pounds except when loaded to or unloaded from self-propelled vessels over 200 feet in length, or any vessel not self-propelled interchanging cargo with such vessels.

Top wharfage will not be assessed against import, export, or intercoastal cargo handled by sailing vessels and other craft not exceeding 200 feet in length or vessels, other than self-propelled but including sailing vessels, exceeding 200 feet in length, if such cargo is transferred to or from such vessels direct from or to foreign or intercoastal carriers outside of the port of Trenton, due to channel depth limitations.

Excursion vessels are assessed wharfage at the rate of 3 cents per revenue passenger.

China clay, ball clay, Cornwall stone, feldspar, flint, and related ceramic materials, ingredients, or compounds are subject to a wharfage charge of 10 cents per 2,000 pounds; provided, however, that no wharfage charge will be assessed when cargo is received or shipped as general cargo, or on shipments moving by rail which pay the Pennsylvania Railroad, or its connections, rail freight charges of not less than 10 cents per 100 pounds or $2 per ton of 2,000 or 2,240 pounds as rated, or higher, subject or not to the provisions of P. R. R.-I. C. C. No. 1273. When the rate is more than 9¼ cents, a charge will be assessed to cover the difference, the total to be not more than 10 cents including rail freight and service charge, as provided for in rail carriers tariffs and Trenton Marine Terminal tariff No. 4.

LOADING AND UNLOADING

The Pennsylvania Railroad, tariff 1648–D, I. C. C. 1273, applicable at Trenton, N. J., provides that, except on lumber, intercoastal freight moved via the Panama Canal and freight destined to or received from foreign ports which pays the Pennsylvania Railroad and its connections 10 cents per 100 pounds or $2 per ton of 2,000 or 2,240 pounds or higher will be loaded from piers to cars or unloaded from cars to piers at the Trenton Marine Terminal free of charge.

On similar traffic, except lumber, which pays a freight rate of less than 10 cents per 100 pounds or $2 per ton of 2,000 or 2,240 pounds, there will be an additional charge for loading or unloading of cars of 55 cents per ton of 2,000 or 2,240 pounds when the railroad performs the service. The combined freight and loading charge in such cases shall not exceed 10 cents per 100 pounds or $2 per ton.

The above rule does not apply on import freight, except lumber, all kinds, including wooden logs, poles, piling and ties, when loaded in open cars at uncovered piers; on intercoastal freight, in bulk via the Panama Canal, except bulk clay and ores; on intercoastal freight via Panama Canal, except lumber, all kinds, from open cars at uncovered piers; on pieces or packages exceeding 3 tons in weight, or pieces of extraordinary dimensions, or upon pieces of extraordinary measurements or size compared with the weight thereof; on export traffic when unloaded from open cars at uncovered piers; or on oils in bulk.

On lumber, all kinds, including logs, wooden poles, piling and ties, which pays a rate of 10 cents per 100 pounds or $2 per ton of 2,000 or 2,240 pounds an additional charge of 39 cents per 2,000 pounds is assessed for loading open cars, and 83 cents per 2,000 pounds for loading into box cars, whether handled direct from vessels to cars or from piers to cars, or received from vessels by lighters or car floats, or received from intermediate storage.

On lumber, all kinds, which pays a rate of less than 10 cents per 100 pounds or $2 per ton of 2,000 or 2,240 pounds, an additional charge of 55 cents per 2,000 pounds is assessed for loading on open cars and 83 cents for loading into box cars, whether handled direct from vessel to cars, or from piers to cars, or received from vessels by lighters or car floats, or received from intermediate storage. The combined freight and loading charge, however, not to exceed 12 cents per 100 pounds or $2.40 per 2,000 pounds for loading on open cars.

The Trenton Marine Terminal publishes the following loading charges for lumber, lath, and shingles:

Lumber:	
Loading to open top and box cars: [1]	
Direct from end of ship's tackle, per net ton	$0. 35
From open storage yard, per net ton	. 35
From covered storage, per net ton	. 35
Loading trucks or teams: Service performed when requested, per 1,000 net feet	. 65
Shingles:	
Loading box cars: [1] When not absorbed in rail freight, per net ton	. 50
Loading trucks or teams: Service performed when requested, per bundle	. 015
Lath:	
Loading box cars: [1] When not absorbed in rail freight, per net ton	. 50
Loading trucks or teams, service performed when requested:	
Regular, per 1,000 pieces	. 15
Fence, per 1,000 pieces	. 25
Lumber:	
Discharging from deck scows, per 1,000 net feet	. 75
Discharging from barges, sailing vessels, and power lighters, per 1,000 net feet	1. 00

[1] Rates for loading and staking cars are in accordance with P. R. R.-I. C. C. 1273, supplements thereto and reissues thereof unless otherwise canceled or changed.

HANDLING

The Trenton Marine Terminal quotes a charge of 40 cents per ton of 2,000 pounds for handling general cargo from shipside to place of rest, and rough piling it man high in the open or under cover. A similar charge is made for handling from place of rest in open or under cover to shipside.

Fertilizer compounds and materials, including ore pyrites and phosphate rock, in sacks, barrels, casks, drums, boxes, bales, or in bulk; and peat moss or sphagnum, including florist's or nursery moss, in bales, sacks, barrels, or boxes; and grain or grain products, including animal and poultry feed, in sacks, barrels, casks, boxes, or bales, are subject to a handling charge of 35 cents per net ton when in packages weighing 50 pounds or over and 50 cents per net ton when in packages weighing less than 50 pounds for movement between shipside and place of rest in terminal, or, to or from trucks into or out of storage, place of rest, or shipside.

The following handling charges on lumber, lath, shingles, and woodpulp are assessed by the Trenton Marine Terminal:

Lumber

	Per 1,000 net feet
Back handling from end of ship's tackle:	
To place of rest in open for truck delivery	$1.00
To place of rest under cover for truck delivery	1.25
To place of rest for boxcar loading	.50
To open storage, piled by hand	1.50
To open storage, piled by crane	1.25
To open storage, hand piled and stripped [1]	1.75
To open storage, sorted and hand piled	2.00
To covered storage, hand stored	2.00
To covered storage, hand piled and stripped [1]	2.25
To covered storage, sorted and hand piled	2.50
Handling:	
From open storage to alongside string piece of dock for vessels	1.50
From covered storage to alongside string piece of dock for vessels	1.75
From open or covered storage to alongside loading tracks for subsequent loading into open top or box cars	.50
Sorting:	
Performed during rehandling only	.75
After piling to storage has been performed	2.00
	Per 1,000 gross feet
Tallying:	
Performed during rehandling only	$0.40
Executing releases on delivery orders for less than full lot:	
From straight lots of one size and length	.10
From lots containing more than one size or length	.25
Minimum charge per release	.25

[1] Owner to furnish strips.

Shingles

	Per bundle
Handling from ship's tackles:	
To place of rest in open for truck delivery or storage	$0.02
To place of rest under cover for truck delivery or storage	.025
To alongside track for subsequent loading into rail cars	.015
Handling from yard or shed:	
To alongside track for subsequent loading into rail cars	.015

Lath, regular

Handling from ship's tackle to place of rest for truck delivery or storage:	
Bundles of 100 pieces in open	.015
Bundles of 50 pieces in open	.01
Bundles of 100 pieces under cover	.02
Bundles of 50 pieces under cover	.0125
Handling from ship's tackle to alongside track for subsequent loading into railroad cars:	
Bundles of 100 pieces	.015
Bundles of 50 pieces	.01

Lath, fence

	Per 1,000 pieces
Handling from ship's tackle to place of rest for rail, truck delivery or storage, in open or under cover	$0.25
Handling from yard or shed to alongside track for subsequent loading into railroad cars:	
Regular	.15
Fence	.25

Woodpulp

	Per net ton
Carloading, when not absorbed in freight rate, from place of rest or storage [2]	$0.50
Loading trucks, from place of rest or storage [2]	.50
Handling from place of rest into storage [2]	.35
Handling from storage to loading platform or string piece. (Not assessed when truck loading is performed by terminal or when carloading is performed by terminal or rail carrier) [2]	.35

The following handling charge is assessed on lumber, shingles and lath in transit and subject to demurrage when ordered placed in storage by owners:

Lumber to open storage, per 1,000 net feet	$0.50
Lumber to covered storage, per 1,000 net feet	.75
Shingles, per bundle	.015
Lath, bundles of 100 pieces, per bundle	.015
Lath, bundles of 50 pieces, per bundle	.01

[1] Rate includes service charge.

Free Time and Storage

Railroad rules

Exports and domestic shipments.—The Pennsylvania Railroad permits freight except scrap iron and steel, carloads, shipped to Trenton for export to foreign countries, covered by local bills of lading and actually exported to be held free of demurrage and storage charges for

a period of 10 days from date of arrival when in carloads, and 5 days when in less than carloads, exclusive of date of arrival. Domestic freight for transshipment by vessel, when on local bills of lading will be held free of demurrage and storage charges for a period not exceeding 5 days from date of arrival, exclusive of such date of arrival. After the expiration of free time the following storage charges are levied:

	Per 100 pounds
First 10 days or fraction thereof	$0. 01
Each succeeding 10-day period or fraction thereof	. 005

On scrap iron and steel in carload lots the storage rate is 1 cent per 100 pounds for the first six storage periods of 5 days each after expiration of the free time allowance of 10 days when moving by steamship lines other than named in tariff and 15 days when moving on through export bills of lading via steamship lines named in the tariff. For the second six periods the rate is 1¾ cents per 100 pounds per period, while for all succeeding periods the charge is 2¼ cents per 100 pounds.

In computing free time, Sundays and full legal holidays will be excluded. Tariff authority, P. R. R. 1648–D, I. C. C. 1273.

Import traffic.—The Pennsylvania Railroad permits freight, except wood pulp, crude rubber, pig iron, iron ore, manganese ore, and chrome ore, received from foreign countries when in transit via the Pennsylvania Railroad to be held free of charge at owner's risk for 5 days. Time to be computed from the first 7 a. m. following the day on which the vessel completes discharging its cargo, Sundays and full legal holidays to be excluded.

Pig iron, iron ore, manganese ore, and chrome ore are subject to demurrage rules and charges as shown in Agent B. T. Jones I. C. C. 2639.

Wood pulp and crude rubber are allowed 15 days free time.

After expiration of free time the following storage charges are levied:

	Per 2,000 pounds
Wood pulp:	
First 30 days or fraction thereof	$0. 17
Each succeeding 10-day period	. 055
	Per 100 pounds
Crude rubber:	
First 10 days or fraction thereof	$0. 01
Each succeeding 10 days or fraction thereof	. 005
Clay in bulk:	
First 10 days or fraction thereof	. 0225
Each succeeding 10 days or fraction thereof	. 01
Other commodities:	
On traffic with a minimum weight in the official classification of 24,000 lbs. or higher:	
First 30 days or fraction thereof	. 055
Each succeeding 15 days or fraction thereof	. 0175

Other commodities—Continued.

	Per 100 pounds
On traffic with a minimum weight in the official classification lower than 24,000 lbs.:	
First 30 days or fraction thereof	$0. 09
Each succeeding 15 days or fraction thereof	. 0325

Storage charges cease when shipping instructions are given the railroads. Tariff Authority, P. R. R. 1648–D, I. C. C. 1273.

Intercoastal receipts.—Package, piece and bulk freight, except wood pulp and pig iron, iron ore, manganese ore, and chrome ore received from Pacific coast ports, when in transit via the Pennsylvania Railroad, will when storage space is available, be held free of charge at owner's risk for a period of 5 days, computed from the first 7 a. m. following the day on which vessel completes discharging its cargo. Wood pulp is allowed 15 days' free time, while pig iron, iron ore, manganese ore and chrome ore are subject to demurrage rules and charges as shown in Agent B. T. Jones I. C. C. 2639.

Storage charges on intercoastal traffic are similar to those given under imports, see page 197.

Trenton Marine Terminal

Free time.—Fertilizer compounds and materials, peat and sphagnum moss, and grain and grain products received for shipment by water will be held free of charge at owner's risk for 7 days from date of arrival when destined for shipment in the foreign and intercoastal trade and 5 days when destined for shipment via coastwise or inland waterway vessels. In computing free time Saturday afternoons, Sundays, and full legal holidays will be excluded.

When these commodities are received by water the same free time periods will be allowed except that time will be computed from the first 7 a. m. following the day on which the vessel completes discharging its cargo.

Lumber, lath, and shingles received by water will be allowed 5 days free time for complete removal of cargo. Free time to commence at 7 a. m. following completion of discharging from vessel, and is exclusive of Sundays and full legal holidays.

Wood pulp received from foreign and intercoastal trade vessels is allowed 10 days free time, while coastwise and inland waterway traffic is allowed only 5 days.

On all other commodities except sand, gravel, trap rock, crushed stone, pig iron, coal and coke, foreign traffic is allowed 15 days' free time, intercoastal traffic 7 days, and coastwise traffic 4 days after departure of vessel.

No free time is allowed on sand, gravel, trap rock, crushed stone, pig iron, coal, and coke, and demurrage charges commence the first 7 a. m. after vessel completes discharging.

Demurrage.—After the expiration of free time the following demurrage charges will be assessed against goods remaining on terminal property commencing first 7 a. m. after the expiration of free time, unless released or ordered into storage:

	Per day
Fertilizer compounds and materials, peat and sphagnum moss, and grain and grain products:	
Under cover, per 2,000 pounds	$0. 10
In open, per 2,000 pounds	. 05
Lumber:	
Open storage, per 1,000 net feet	. 05
Covered storage, per 1,000 net feet	. 10
Shingles: Covered storage, per 5 bundles	. 01
Lath:	
Covered storage, per 10–100-piece bundles	. 015
Covered storage, per 20–50-piece bundles	. 015
Wood pulp, per 2,000 pounds	. 05
All other commodities:	
Bulk cargo, per 2,000 pounds	. 05
General cargo, per 100 pounds	. 05

Storage.—Goods are stored at the terminal subject to the terms and conditions of standard form of warehouse receipt. Goods ordered to storage will be assessed storage charges commencing day of arrival when received by rail or truck and first 7 a. m. following the day on which vessel completes discharging its cargo (inclusive of free time period). All storage is subject to availability of space.

The following storage charges are in effect:

	Per 2,000 pounds
Fertilizer compounds and materials, peat and sphagnum moss, and grain and grain products, under cover, for each 30-day period	$0. 30

	Per month	
	Open storage	Covered storage
Lumber, per 1,000 net feet	$1. 00	$2. 00
Shingles, per bundle	. 03	. 05
Lath, per bundle, 100 pieces	. 03	. 05
Lath, per bundle, 50 pieces	. 015	025

The following storage charges will apply only on:

1. Shipments actually consigned, at time of arrival of vessel and released by shipper within free time period to—

(*a*) Definite dealer consignees operating regularly established retail lumber yards to which shipments will be ultimately transferred.

(*b*) Industrial establishments and such other users who ordinarily secure their supplies direct from wholesale shippers or producers, to whom such shipments will be ultimately transferred, and will be for such consignee's account.

2. Distress shipments, viz., shipments originally consigned to a definite consignee (other than a wholesaler without a regularly established yard) at a definite destination which have become involved in dispute and delivery delayed, order cancelled, or refused.

	Per month	
	Open storage	Covered storage
Lumber, per 1,000 net feet	$0.20	$0.40
Shingles, per bundle	.015	.02
Lath, per bundle, 100 pieces	.01	.02
Lath, per bundle, 50 pieces	.005	.01

Storage charges on all other commodities are based on type of commodity and space required, and will be furnished upon request.

Track storage.—The Trenton Marine Terminal assesses a track storage charge of $1.25 per car per day or fraction thereof which is in addition to any and all charges assessed by rail carriers, subject to the following rules:

This charge will apply on empty cars placed for loading, loaded cars placed for unloading and loaded or empty cars placed for storage on terminal-owned tracks.

It is not applicable to empty or loaded cars placed on terminal tracks in connection with shipments received from or delivered to vessels paying dockage, provided dockage and other terminal charges aside from track storage exceed the aggregate of track storage charges (or placed by carriers in anticipation thereof, or consigned to or shipped by the United States Government, State of New Jersey, or city of Trenton).

In computing time, Sundays and full legal holidays (National, State and municipal), but not half holidays will be excluded; when a legal holiday falls on Sunday, the following Monday will be excluded, except in such cases when cars are loaded or unloaded on Sundays or holidays.

The Trenton Marine Terminal reserves the right to decline permission to load or unload cars on Sundays or holidays.

Time will be computed as full day for part of day, commencing at time of placement; except when placed after 3 p. m., in such cases time to commence the following day, provided, however, operation of loading or unloading has not commenced on day of placement.

Time will be concluded on day of release to rail carrier.

The Trenton Marine Terminal assumes no responsibility for the notification to rail carrier for placing or releasing of cars.

Equipment charges

The following charges are assessed for the use of mechanical equipment at the Trenton Marine Terminal:

Gantry crane with operator (hook) per hour	$4.00
Minimum charge	8.00
Gantry crane with clam shell bucket and operator	4.50
Minimum charge	8.00
Caterpillar crane with hook and operator	4.00
Minimum charge	4.00
Caterpillar crane with clam shell bucket and operator	4.25
Minimum charge	4.00
Lumber carriers with operator	3.00
Hand lift trucks, per day	2.00
Hand lift trucks, skids, per day	.25
Hand trucks, barrows, etc., per day	.50
Platform scales, per day	2.50

MISCELLANEOUS CHARGES

Water.—The Trenton Marine Terminal will furnish water to vessels for 20 cents per 100 cubic feet. Minimum charge, $1. For use of hose there is an additional charge of $1.

Electricity.—For each light or cluster of lights furnished vessels by the terminal there is a charge of $1 per night or part thereof. Current is furnished at the rate of 10 cents per kilowatt-hour.

Weighing.—The charge for weighing bulk commodities in trucks on the truck scales is 10 cents per net ton, including public weighmaster's certificate, minimum charge 25 cents.

The charge for weighing on platform scales at shipside, on deck or in pier shed, including public weighmaster's certificate is cost of labor plus 15 percent plus $2.50 per day for use of scales.

Watchmen.—Watchmen or guards may be obtained for $5 per 8-hour shift.

Labor.—For special services the terminal will furnish labor for cost of labor, supervision, and insurance, plus 10 percent.

Handling lines.—Self-propelled vessels subject to dockage on a net-registered-ton basis are assessed $5, while all other vessels are assessed $1.50 per vessel if service is requested.

Pounding.—When necessary to pound bagged commodities the charge for such service will be 60 cents per net ton. Bags broken during pounding process will be subject to a resacking charge.

Resacking.—The charge for resacking, including weighing, sewing, and piling is $1.50 per net ton. Where commodity is ordered for immediate shipment, and shipping instructions accompany the order, the charge for resacking, weighing, and sewing is $1.15 per net ton. In all cases owner must furnish sacks and twine.

Reconditioning.—When opening sacks, screening, resacking, and weighing is requested the charge will be $2 per net ton which includes handling from storage pile and repiling. If commodity is destined for immediate shipment and shipping instructions accompany order the charge will be $1.65 per net ton. Owner to furnish sacks and twine.

Sacking.—Bulk commodities ordered sacked will be subject to a charge of $1.25 per net ton, including weighing, sewing, and piling, but if destined for immediate shipment and shipping instructions accompany order the charge will be 90 cents per net ton. Owner must furnish sacks and twine.

Receiving and delivering cargo.—Cargo other than lumber, shingles, lath, wood pulp, cork waste, pig iron, coal, and coke received or delivered by the terminal during free time period is assessed 20 cents per net ton.

Service charge.—Wood pulp handled through the terminal is assessed a service charge of 20 cents per net ton when no handling is performed by the terminal. Also applies on nonwater-borne traffic.

STEAMSHIP SERVICES, RATES, AND RATE CONFERENCES

STEAMSHIP SERVICES

The port of Trenton is not a regular port of call for any steamship line. In-bound and out-bound service is dependent entirely upon cargo offerings. The Bristol City Line and the Hamburg-American Line are the most prominent of the lines engaged in foreign trade calling at the port while the Weyerhaeuser Steamship Co., McCormick Steamship Co., and the Quaker Line are most prominent in the inter-coastal trade.

For information concerning steamship services from the Delaware district see page 165, port of Chester, Pa.

TERRITORY TRIBUTARY

Trenton is primarily a local port. The greater part of its tonnage during 1937 was destined to or originated in the port and its immediate surrounding territory.

Imports of ball and china clay from England, and flint pebbles from France and Denmark were distributed principally to the local ceramic industry. Fertilizer from Germany was shipped to the surrounding farm areas in north central Jersey, northeastern Pennsylvania and to some extent southeastern New York, most of which territory is within 75 miles of the port. Exports consisted entirely of scrap iron assembled from local territory, and destined to Japan.

Intercoastal receipts consisted principally of lumber which was distributed locally and to nearby points, while shipments in this trade were composed principally of the products of industries in Trenton and nearby points.

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